OMAHA, NE, DISTRICT

This district comprises portions of Montana, Wyoming, North Dakota, South Dakota, Minnesota, Colorado, Nebraska, Iowa, and Missouri, all embraced in the drainage basin of the Missouri River along the mainstem and tributaries to Rulo, NE.

IMPROVEMENTS

Navigation

1. MISSOURI RIVER, SIOUX CITY, IA TO MOUTH (SIOUX CITY, IA TO RULO, NE)

Location. Channel of the Missouri River extending from Sioux City, IA to Rulo, NE.

Previous Projects. For details see page 1893, Annual Report for 1915, and page 1175, Annual Report for 1938.

Existing Project. A navigation channel of 9-foot depth and width not less than 300 feet, obtained by revetment of banks, rock dikes to contract and stabilize waterway, cutoffs to eliminate long bends, closing minor channels, and removal of snags and dredging as required. Construction was initiated on this section of the project (Sioux City to Rulo) in FY 1928, the bank stabilization work was completed in April 1979, and the navigation feature was completed in September 1980. A reliable channel suitable for navigation is available through this section. Controlling depth at ordinary stages of the river is 9 feet, with additional depths available during high stages. Commercial navigation was inaugurated on this section in May 1939, and common carrier transportation service was inaugurated in October 1946. Seven riverside recreation sites are complete and in operation. (See Table 26-A for total cost of construction.)

Local Cooperation. Requirements are described in full on page 26-2 of FY 1988 Annual Report.

Terminal Facilities. Terminal facilities for loading and unloading grain, liquids and dry bulk products are maintained by private interests at various locations on this section of the river. A complete list of terminal facilities is included in the Missouri River navigation maps and can be obtained from the Omaha District for a small fee.

Operations During FY. District personnel accomplished channel reconnaissance, surveys and mapping, engineering and design, surveys and layouts of construction, and supervision and administration. Local interests operate and maintain the recreation sites. Government Hired Labor Forces completed maintenance, which consisted of placing stone on damaged structures and placing structure markers to aid navigation.

2. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Small Navigation Projects Not Specifically Authorized by Congress (Sec. 107 of the River and Harbor Act of 1960, as amended, Public Law 645, 86th Congress).

No work during the period.

Flood Control

3. ABERDEEN, SD

Location. This project is in the Moccasin Creek sub basin in the city of Aberdeen, Brown County, South Dakota. Aberdeen is located in the James River Valley in the northeast quarter of South Dakota.

Existing Project. The selected alternative is a 100-year event levee 2.9 miles long on the northeast side of Aberdeen that will prevent 49 percent of the average annual flood damages to structures and contents in that area. The proposed levee will essentially block existing drainage to Moccasin Creek, and a combination of culverts with gates and detention ponds were incorporated into the design to mitigate this interior drainage problem. A two-foot road raise at Fairgrounds Road is also included.

Local Cooperation. Section 205, Flood Control Act of 1948, as amended applies. The city of Aberdeen and Brown County is paying the local share of the project.

Operations During FY. Plans and specifications were completed for Phase II construction. Advertisement and award of Phase II will occur FY 2004.

4. ANTELOPE CREEK, LINCOLN, NEBRASKA

Location. Antelope Creek is located in the southeastern portion of Nebraska in Lancaster County and passes through the state capital of Lincoln.

Existing Project. The project consists of 2 miles of improved channel extending upstream from the mouth of Antelope Creek, a portion of which is a by-pass channel adjacent to a 4,060 foot-long concrete conduit in the downtown area. The project also includes a labyrinth weir control structure, two existing bridge replacements, one bridge modification, and 2.29 miles of recreation

trails along the proposed channel project. The channel improvement project will provide flood damage reduction to the city of Lincoln and the University of Nebraska-Lincoln campus. The Antelope Creek project is just one piece of a larger Antelope Valley project, which combines flood control, urban revitalization, and transportation projects.

Local Cooperation. This project is authorized under Section 101(b)(19) of the Water Resources Development Act of 2000. The Project Cooperation Agreement (PCA) with the Lower Platte South Natural Resources District and the Joint Antelope Valley Authority to sponsor the Antelope Creek project was executed in October 2002. The current non-Federal cost estimate is $26,338,000. The current Federal cost estimate is $26,338,000 for a total project cost of $52,676,000.

Operations During FY. PCA was executed in October 2002. Phase 1 construction contract in the amount of $3,282,466 was awarded to Hawkins Construction Company, Omaha, Nebraska, in December 2002. Phase 1 construction began in January 2003 and continued throughout fiscal year 2003, with Phase 1 construction completion scheduled for fiscal year 2004.

5. BEAR CREEK LAKE, CO

Location. The dam site is on Bear Creek in Jefferson County, CO, about 8 miles above the confluence of Bear Creek with the South Platte River at Denver.

Existing Project. Earthfill dam 180 feet high, with a crest length of about 5,300 feet; and a supplementary earthfill dike with a height of 65 feet and a crest length of 2,100 feet, to the south of the main dam, and an uncontrolled earth and rock-cut emergency spillway. The lake provides storage capacity of 28,831 acre-feet for flood control and 1,979 acre-feet for sediment and recreation. Construction of the project was initiated in October 1973 and was completed in September 1982, exclusive of recreation facilities. (See Table 26-A for total cost of construction.)

Local Cooperation. Requirements are described in full on page 21-3 of FY 1981 Annual Report.

Operations During FY. Maintenance: Continued routine operation and maintenance activities.

6. BIG SIOUX RIVER AND SKUNK CREEK, SIOUX FALLS, SOUTH DAKOTA

Location. Sioux Falls is located on a large bend of the Big Sioux River and at the confluence with Skunk Creek in the south half of Minnehaha County in southeastern South Dakota.

Existing Project. The project builds upon an existing project. It consists of raising an existing levee from the diversion dam to the upstream tie-off, raising the diversion channel levee, modifying the chute and stilling basin, raising the diversion dam, raising the levees on Skunk Creek, raising big Sioux levees downstream of Skunk Creek, and providing for bridge improvements.

Local Cooperation. This project is authorized under Section 101 of the Water Resources Development Act of 1996. The Project Cooperation Agreement (PCA) with the city of Sioux Falls to sponsor the Big Sioux River project was executed on 14 August 2000. The current non-Federal cost estimate is $10,402,000. The current Federal cost estimate is $31,206,000, for a total project cost of $41,608,000.

Operations During FY. Construction of Phase IC was completed. Plans and specifications for Phase 2 and real estate purchases for Phase 2 were all initiated.

7. BOWMAN-HALEY LAKE, ND

Location. The dam site is on North Fork of Grand River in southwestern North Dakota, about 6 miles above Haley, ND.

Existing Project. An earth-fill dam 79 feet high, with a crest length of 5,730 feet, and a reservoir with a flood storage capacity of about 72,700 acre-feet, plus 19,780 acre-feet for sediment storage, fish and wildlife conservation, recreation, and future water supply for communities of Bowman, Reeder, Scranton, and Gascoyne, ND. Construction was initiated in July 1964, and the project was completed in 1970. (See Table 26-A for total cost of construction.)

Local Cooperation. Requirements are described in full on page 26-2 of FY 1988 Annual Report.

Operations During FY. Maintenance: Continued

routine operation and maintenance activities.

8. BUFORD TRENTON IRRIGATION DISTRICT, ND (LAND ACQUISITION)

Location. The Buford Trenton Irrigation District (BTID) is located in the flood plain along the left (north) bank of the Missouri River near its confluence with the Yellowstone River, in Williams County near Williston, ND.

Existing Project. The project consists of the acquisition of permanent flowage and saturation easements within and surrounding the BTID for land that has been affected by rising ground water and the risk of surface flooding. There are approximately 70 affected landowners and 90 tracts. Approximately 10,000 acres are irrigable and 1,750 non-irrigable. Acquisition of easements and relocation assistance under P. L. 91-646 began in FY 1998. The total cost of the project is capped at $34,000,000 by authorizing legislation.

Location Cooperation. The project is authorized under Section 336(a) of the Water Resources Development Act of 1996, P. L. 104-303. Local cooperation is not applicable.

Operations During FY. During fiscal year 2003, eight easements were purchased totaling $2,320,699 with associated costs. Relocation actions continued during the year and will increase until project completion. All initial appraisals have been completed. The purchase of additional easements, associated costs, and relocations will continue in FY 2004.

9. CHATFIELD LAKE, CO

Location. A dam site on the South Platte River, just below the mouth of Plum Creek, about eight miles up-stream from Denver, CO.

Existing Project. Consists of rolled earth-fill dam with a maximum height of 148 feet and a crest length of 12,500 feet; a reservoir with flood control capacity of 204,737 acre-feet and sediment capacity of 26,692 acre-feet, which will be used for recreation; and an enlarged channel from the dam downstream to Denver to accommodate reservoir flood releases. The Corps participated with local interests in acquisition of lands and development of recreation facilities immediately downstream of the Chatfield Dam in lieu of a portion of the channel improvement. Construction of the project was initiated in August 1967 and was physically completed in 1992. (See Table 26-A for total cost of construction.)

Local Cooperation. Requirements are described in full on page 26-3 of FY 1993 Annual Report.

Operations During FY. Maintenance: Continued routine operation and maintenance activities.

10. CHERRY CREEK LAKE, CO

Location. A dam site on Cherry Creek in Arapahoe County, CO, approximately 6 miles southeast of Denver, CO, just outside of city limits. Cherry Creek joins South Platte River within city limits of Denver,

Existing Project. A rolled earth-fill dam with maximum height of 141 feet above streambed and a crest length of 14,300 feet. Project includes a reinforced concrete outlet works and an uncontrolled side channel spillway canal discharging into adjacent Toll Gate Creek. Cherry Creek project provides reservoir storage capacity of 93,920 acre-feet below spillway canal invert and, in addition, a surcharge storage of 134,470 acre-feet. Plan of operation in ultimate development for multiple-purpose uses includes 13,960 acre-feet for sediment storage and 79,960 acre-feet for conservation purposes. Construction began in FY 1946 and was completed in June 1961, exclusive of recreation facilities. (See Table 26-A for total cost of construction.)

Local Cooperation. None required except for recreation cost sharing.

Operations During FY. Maintenance: Continued routine operation and maintenance activities.

11. FALL RIVER BASIN, SD

Location. In Custer and Fall River Counties, in and near the town of Hot Springs, SD. Hot Springs unit is in the town of Hot Springs, immediately south of the junction of Cold Brook and Hot Brook, which combine to form the Fall River. Cold Brook Lake unit is approxi-mately 1.25 miles north of the town of Hot Springs on Cold Brook, and Cottonwood Springs Lake unit is approximately 4.5 miles west of the town of Hot Springs

on Cottonwood Springs Creek, one-half mile upstream from its confluence with Hot Brook.

Existing Project. The general plan of improvement provides flood protection for Hot Springs, SD. The Hot Springs channel improvement unit consisted of widening, deepening and straightening 6,000 feet of channel of Fall River. The Cold Brook Lake unit, an earth-fill dam with appurtenant structures, controls an area of 70.5 square miles. The Cottonwood Springs Lake unit consists of an earth-fill dam with appurtenant structures and controls an area of 26 square miles. Construction of Hot Springs unit was completed during FY 1951. Construction of Cold Brook unit dam and appurtenances was completed in FY 1953 with the exception of a road and parking area, which were completed in FY 1955. Construction of the Cottonwood Springs Dam was completed in FY 1970, with the exception of the recreation facilities, which were completed in FY 1972. (See Table 26-A for total cost of construction.)

Local Cooperation. Local cooperation requirements have been fully complied with.

Operations During FY. Maintenance: Routine operation and maintenance activities were continued on the Cottonwood Springs and Cold Brook Dams and structures.

12. LOGAN CREEK, PENDER, NE

Location. This project is located in northeastern NE, approximately 75 miles north-northwest of Omaha, NE. Pender is located along the right bank of Logan Creek, about midpoint in the Logan Creek basin.

Existing Project. The selected and constructed plan is a combination levee and floodwall with a detention storage feature. It provides flood protection from Logan Creek as well as incidental benefit from Stage Creek flooding to the Village's residential and industrial area as well as its central business district. The levee extends approximately 15,000 feet in length along the north, east, and south edge of the community, averaging 10 feet in height.

Local Cooperation. Section 205, Flood Control Act of 1948, as amended; Flood Damage Reduction applies. The Village of Pender is paying the local share of the project.

Operations During FY. O&M Manuals were completed in 2002. Project modification to drainage structures, Real Estate certification and project closeout are projected for completion late in FY 2004.

13. MILK RIVER, MALTA, MT

Location. This project is located in Phillips County in North Central MT. The city of Malta is located approximately 170 miles northeast of Great Falls, MT.

Existing Project. The selected and constructed plan is a levee/floodwall constructed along the right bank of the Milk River to provide protection for the area immediately upstream from the Burlington Northern Santa Fe Railroad (BNSF) bridge. The project consists of an earthen levee that is 1,800 ft in length, combined with a floodwall that extends 1,040 ft. The height of the levee ranges from 4 to 10 ft above natural ground along its entire length. The levee/floodwall requires a tie-off with the existing BNSF grade on the downstream end.

Local Cooperation. Section 205 of the Flood Control Act of 1948, as amended; Flood Damage Reduction applies. The city of Malta participated in the project's cost sharing requirements utilizing a $176,500 grant from the State of MT combined with real estate interests of approximately $282,000.

Operations During FY. Construction phase is complete with remaining requirements directed toward project management, coordination with local sponsors and project closeout.

14. MISSOURI NATIONAL RECREATIONAL RIVER, NE AND SD

Location. On the Missouri River between Gavins Point Dam and Ponca State Park, NE. This includes Cedar and Dixon Counties in Nebraska, and Yankton, Clay, and Union Counties in South Dakota.

Existing Project. The designation as a National Recreational River will preserve outstanding and important scenic values and will provide additional opportunities for river access and recreation use. The project provides erosion control, consisting of bank stabilization and river management techniques designed to preserve the existing environment, and at the same time preserves high

bank flood plain lands. Estimated total cost of construction is $24,626,000 of which $21,000,000 is the Federal cost of construction and $3,626,000 is the non-Federal contributed funds.

Local Cooperation. All recreational construction on this project will be done in accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986. A cost-sharing contract with the state of South Dakota for the Myron Grove access site was signed on June 24, 1986; and the Yankton-Riverside Park Section 215 Agreement was signed on April 24, 1989. Construction was completed in June 1987 and June 1991, respectively. A Section 215 agreement was signed on May 30, 2001 with the Nebraska Game and Parks Commission for construction of the Ponca Resource and Education Center.

Operations During FY. Construction of the Ponca Resource and Education Center was completed, with a dedication ceremony during October. In addition, a 90% design report and Environmental Assessment was completed for a backwater restoration project, also at Ponca State Park, on the Nebraska side of the river. Construction is expected to begin during late FY 2004.

15. MISSOURI RIVER, KENSLERS BEND, NE, TO SIOUX CITY, IA

Location. Project is along Missouri River between Ponca Bend, NE, and combination bridge at Sioux City, IA.

Existing Project. Construction of dikes, revetments and channel improvement along Missouri River from Miners Bend and vicinity, SD and NE, to Sioux City, IA. Project was started in June 1946 and completed in June 1961. (See Table 26-A for total costs.)

Operations During FY. Routine operation and maintenance activities continued.

16. NISHNABOTNA RIVER, HAMBURG, IA

Location. This project, the Nishnabotna River and Main Ditch 6 at Hamburg, IA is located in Fremont County, 40 miles south-southeast of Omaha, NE.

Existing Project. The selected and completed plan determined in the feasibility phase, is the construction of a levee approximately 8,300 ft in length along the left bank of Main Ditch No. 6. A range of economically feasible plans was identified from which the city of Hamburg selected and is supported by the Corps. A levee was constructed along Main Ditch 6 with a levee top, referenced as the 911.0 m.s.l. plan having an accedence equivalent to a 300-year event and a 46 percent reliability passing 500-year event. Selection of a levee height was constrained by the elevation of the Burlington Northern Santa Fe (BNSF) Railroad mainline tracks. The BNSF has raised its mainline track approximately 1.5 ft to accommodate the new levee.

Local Cooperation. Section 205 of the Flood Control Act of 1948, as amended; Flood Damage Reduction applies. The city of Hamburg is participating in the project's cost-sharing requirements utilizing a Community Development Block Grant to help fund real estate interests of approximately $130,500 and cash contributions of $226,800.

Operations During FY. Operations & Maintenance Manuals were prepared in FY2001. Remaining requirements are directed toward project management coordination with local sponsors and project closeout.

17. PAPILLION CREEK AND TRIBUTARIES LAKES, NE

Location. The Papillion Creek basin is located in Washington, Douglas, and Sarpy Counties, NE. Big Papillion Creek rises west of Blair and flows southeasterly through metropolitan Omaha. It is joined by the Little Papillion Creek just above Offutt AFB, forming Papillion Creek. The combined creeks flow along the side of Offutt AFB to its confluence with the Missouri River.

Existing Project. The project consists of a series of four dams and reservoirs, channel improvements, an effluent storage facility, and a flood warning system on tributaries of Papillion Creek. Construction was initiated in FY 1972. Completed projects include Standing Bear Lake, Glenn Cunningham Lake, and Wehrspann Lake. Estimated total costs for the project is $68,659,000 consisting of $64,334,000 in Federal funds ($1,367,000 to be reimbursed by the non-Federal sponsor) and $2,958,000 non-Federal other costs and cash contributions.

Local Cooperation. Requirements are described in

full on page 21-6 of FY 1981 Annual Report.

Operations During FY. O&M manuals have been finalized. Remaining requirements are directed toward project management coordination with local sponsors and project closeout.

18. PEBBLE CREEK, SCRIBNER, NE

Location. Scribner, NE, is located in Dodge County about 47 miles northwest of Omaha. Pebble Creek is a right-bank tributary to the Elkhorn River.

Existing Project. The project includes a 3.6 mile-long levee along the Elkhorn River with a maximum height of 5 ft (a modification to the original Pebble Creek project), one closure structure at U.S. HWY 275 at the northern edge of Scribner, and several ramps over the two levees. An automated flood warning system was installed that will allow adequate time to operate the closure structure. Both levees are completed which essentially is one ring levee that provides protection for the entire city of Scribner.

Local Cooperation. The city of Scribner strongly supported the entire Pebble Creek levee project, including the Elkhorn River levee and its modification. The City obtained cost-sharing assistance from the Nebraska Natural Resources Commission and the Lower Elkhorn Natural Resources District. The total cost of the project was $3,232,000. The non-Federal portion of this totaled was $807,000 which includes $363,000 for lands, easements, and rights-of-way.

Operations During FY. Final audit and project closeout projected for FY 2004.

19. PERRY CREEK, IA

Location. The Perry Creek basin is located in Woodbury and Plymouth Counties in northwestern Iowa. The downstream five miles of the basin lie within the corporate limits of Sioux City, IA, and drain the central portion of the city.

Existing Project. The project consists of 14,800 linear feet of grass and rock lined channel, 1,500 linear feet of new conduit, modification of 710 linear feet of existing conduit, and a concrete stilling basin, to provide capacity for the 100-year event. Also included are 4.25 miles of hiking/biking trail and a basin-wide flood warning system. Estimated project cost is $96,870,000, of which $58,677,000 is Federal cost and $38,193,000 is non-Federal cost.

Local Cooperation. The project is authorized under the 1986 Water Resources Development Act. The city of Sioux City, IA, is the local sponsor.

Operations During FY. Post Authorization Change Report requesting reauthorization of the project was completed and sent to Headquarters. Additional cultural investigations were completed in the summer and a housing demolition contract was awarded.

20. PICK-SLOAN MISSOURI BASIN PROGRAM (OMAHA DISTRICT)

Location. Flood control improvements in this project are along the Missouri River and several of its principal tributaries and in states comprising the Missouri River Basin.

Existing Project. A general comprehensive plan for flood control and other purposes in the Missouri River Basin provides for levees along Missouri River between Sioux City, IA, and mouth and reservoirs on the Missouri River main stem and tributaries. See individual reports and Table 26-I for projects in the Omaha District included in the program.

21. PIPESTEM LAKE, ND

Location. On Pipestem Creek in Stutsman County, ND, three miles upstream from where Pipestem Creek joins the James River at Jamestown, ND.

Existing Project. The project consists of a rolled earthfill dam approximately 108 feet high with a crest length of 4,000 feet and outlet works of a gated reinforced concrete conduit. The reservoir provides 146,880 acre-feet of storage. The multipurpose pool provides space for silt storage and 885 acres of water surface for fish, wildlife and recreation needs. Construction of the project was initiated in FY 1970 and completed in FY 1977. (See Table 26-A for total construction costs.)

Local Cooperation. Requirements are described in full on page 26-6 of FY 1988 Annual Report.

Operations During FY. Routine operation and

maintenance activities continued.

22. SALT CREEK AND TRIBUTARIES, NE

Location. Salt Creek Basin comprises an area of about 1,627 square miles in and around Lincoln in southeastern Nebraska.

Existing Project. The authorized project consists of a system of 10 dams and reservoirs, channel clearing, enlarging and realignment, levees and necessary bridge alternations. Pursuant to Senate Resolution adopted August 7, 1964, which authorized a review of the Salt Creek survey report, additional units were placed in "inactive" classification. Construction of the project began in the spring of 1962. All work under the active portion of the project, consisting of the 10 dams and reservoirs and the channel improvements and levees through Lincoln, was completed in 1969. Funds were transferred to the project in FY 1980 with concurrence of Congressional Committees. These funds were used to determine an effective method of correction for the dispersive clay problem in the completed downstream levees through Lincoln. (See Table 26-A for total construction costs.)

Local Cooperation. Requirements are described in full on page 26-6 of FY 1988 Annual Report.

Operations During FY. Maintenance: Routine operation and maintenance activities continued.

23. SOUTH PLATTE RIVER BASIN, CO

Location. Flood control improvements in this project are along the South Platte River and its tributaries in Colorado.

Existing Project. General plan for flood control and other purposes to provide for construction of Chatfield Lake on the South Platte River, Bear Creek Lake on Bear Creek, and levee and channel improvements on the South Platte River. (See individual reports and Table 26-B for authorizing legislation).

24. VAN BIBBER CREEK, CO

Location. Van Bibber Creek is a right bank tributary of Ralston Creek with the confluence in Arvada, CO. The potential project area includes approximately one mile of the downstream portion of the creek located partially in Arvada and partially in Jefferson County.

Existing Project. The proposed project would include channel improvements including an underground conduit to convey Van Bibber Creek flood waters to Ralston Creek.

Local Cooperation. Section 205, Flood Control Act of 1948, as amended, applies. The City of Arvada is paying the local share of this project. The Project Cooperation Agreement with the City of Arvada, Colorado, to sponsor the Van Bibber Creek project was executed in April 2002.

Operations During FY. Sponsor acquisition activities continued into fiscal year 2003 and two final easements were obtained through condemnation proceedings in January 2003. The project was advertised in May 2003 and bids were opened in July 2003. A legal problem was encountered with the bid opening and the invitation for bids cancelled. Contract award and construction commencement is scheduled for fiscal year 2004 with construction continuing into fiscal year 2006.

25. WOOD RIVER, GRAND ISLAND, NE

Location. This project is located in Hall County Nebraska, approximately midway between the city of Grand Island and Interstate 80.

Existing Project. This project consists of a five-mile long diversion channel with levees on both sides. The channel will divert Wood River flood flows to the Platte River. The diversion structure will be located downstream from the Highway 281 bridge that crosses the Wood River. The diversion channel will begin at that point and run eastward to the Platte River. The current county and city bridges that cross the channels will be designed and constructed by the sponsor. One bridge for the Union Pacific Railroad will be constructed. In addition, a two-mile long tie-off levee and small diversion channel will be built west of highway 281 to prevent Wood River flood flows from spilling into the Warm slough basin nearby and outflanking the diversion channel.

Local Cooperation. This project is authorized under the Water Resources Development Act (WRDA) of 1996, Section 101K modified by WRDA of 1999, Section 335.

The Project Cooperation Agreement (PCA with the Central Platte Natural Resources District was executed on 2 May 2000. The current non-Federal cost estimate is $4,134,000. The current Federal cost estimate is $10,562,000, for a total project cost of $14,696,000.

Operations During FY. The construction contractor completed the construction of the diversion channel and part of the warm slough diversion channel during FY 2003.

26. INSPECTION OF COMPLETED FLOOD CONTROL WORKS

Flood Control Act of June 22, 1936, and subsequent acts require local interests to furnish assurances that they will maintain and operate certain local protection projects after completion, in accordance with regulations prescribed by Secretary of the Army. District Engineers are responsible for administration of these regulations within the boundaries of their respective districts.

Inspections of completed local protection projects which have been turned over to local interests for maintenance and operation during the FY are set forth in Table 26-J, Inspections of Completed Local Protection Projects. FY 2003 costs were $250,512.

27. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Under Sections 7 and 9, Flood Control Act of December 22, 1944, the Corps of Engineers is responsible for detailed scheduling of operations involving storage capacity reserved for or assigned to flood control in reservoirs constructed by the Bureau of Reclamation as well as those constructed by the Corps of Engineers. Costs for FY 2003 were $338,126; and total through September 30, 2003 were $10,699,137.

28. FLOOD CONTROL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Emergency Response Activities - Repair, Flood Fighting and Rescue Work (Public Law 99, 84th Cong., and antecedent legislation.)

The District provided assistance for investigation into the repair of one drainage structure on a Missouri River Levee. Contract award anticipated in early FY 2004.

Operational Program Areas. FY costs as follows:

Preparedness:	
All Hazards Planning Activities	$ 505,032
All Hazards Training & Exercise	0
Facilities	34,036
National Centers of Expertise	0
Emergency Operations:	
Response Operations	9,999
After Action Report	0
Post Flood Response	0
Acquisition of Supplies & Equipment	0
Operational Support	14,323
Support For Others	0
Rehabilitation of Flood Control Works:	
Rehab. Federal Flood Control Works	93,981
Rehab. Non-Federal Flood Control Works	0
Shore Protection	0
Field Investigations	12,262
Inspections	44,264
Interagency Levee Activities	0
Advance Measures:	
Advance Measure Assistance	0
Field Investigations	16,598
Hazard Mitigation (By State):	
Hazard Mitigation Team Activities	0

Small Flood Control Projects Not Specifically Authorized by Congress (Sec. 205, 1948 Flood Control Act as amended, Public Law 858, 80th Cong., June 30, 1948 as amended.)

Federal costs for FY 2003 were $717,276 for feasibility studies, plans and specifications and construction measures. See Table 26-L for detailed breakdown by project.

Emergency Bank Protection (Sec. 14, 1946 Flood Control Act, Public Law 526, 79th Cong., July 24, 1946 as amended.)

Operations under this heading were as follows:

Federal costs for FY 2003 were $48,433 for projects in the planning and design analysis phase and projects in the construction phase. See Table 26-L for detailed breakdown by project.

Environmental

29. CALIFORNIA BEND, NE

Location. The remnant river channel and floodplain land along river miles 648.5 - 650.0 along the Missouri River, in Washington County, about one mile east of Blair, NE.

Existing Project. The project to be modified is the Missouri River Navigation and Bank Stabilization Project. The California Bend modification will restore river flows through the historic river channel adjacent to the navigation channel, to restore fish breeding, brood rearing, resting and feeding habitat, and to benefit the riverine ecosystem as a whole. The downstream end of a 1.5-mile long backwater will be enlarged to provide a permanent connection to the navigation channel, and about 1 mile of excavation will connect its upstream end to the river. This will create permanent flows through about 2.5 miles of channels. Some of the surrounding farmland will be restored to floodplain forest. Also several of the spur dikes along the navigation channel will be lowered to enable navigation flows to create shallow margins along the river.

Local Cooperation. Section 1135 of 1986 WRDA applies. The Papio-Missouri River Natural Resources District is providing all needed cost-sharing, including real estate interests valued at approximately $540,725, and cash of about $600,000.

Operations During FY. Construction contract bids opened November 2002 with contract award December 2002 to Pentzien, Inc. for $1,898,800. Contract completion is scheduled during first quarter FY 2004. Approximately 49 acres of site will be seeded with native grasses and forbs during second quarter FY 2004. PDT will initiate draft of O&M Manual and prepare 5-year monitoring plan in FY 2004.

30. CHEYENNE RIVER SIOUX TRIBE, LOWER BRULE SIOUX TRIBE, AND STATE OF SOUTH DAKOTA TERRESTRIAL WILDLIFE HABITAT RESTORATION

Location. Generally lands located in the state of South Dakota and acquired by the Secretary of the Army for the implementation of the Pick-Sloan Missouri River Basin program. Lands to be transferred to the State are Corps land located above the top of the exclusive flood pool of the Oahe, Big Bend, Fort Randall and Gavins Point projects and located outside of the external boundaries of a reservation of an Indian Tribe. Lands to be transferred to the Secretary of the Interior are lands located above the top of the flood pool of the Big Bend and Oahe projects and located within the external boundaries of the reservation of the Cheyenne River Sioux Tribe and the Lower Brule Sioux Tribe.

Existing Project. Review and submittal to congress of wildlife habitat restoration plans developed by the State and Indian Tribes. Accomplish the transfer of Corps of Engineers land to the State of South Dakota and the Department of Interior for the two Indian Tribes. Estimated total cost of the project is $102,858,000.

Local Cooperation. This project has no cost-sharing sponsor. The entire project is being borne by the Federal government with no cost to either local or tribal governments or the affected state. Therefore, no Project Cooperation Agreements are required. Restoration of terrestrial wildlife habitat loss programs are being accomplished by the transferees through the use of grant instruments until ten years from date of enactment under which the trust funds established under project authorization are fully capitalized.

Operations During FY. Coordination efforts with state and tribal entities continued. Grant agreements were implemented.

31. FORT PECK FISH HATCHERY, MONTANA

Location. The project is located downstream of the Fort Peck Dam in Valley County, southeast of Glasgow, Montana on approximately 96 acres of Corps project land.

Existing Project. The project will establish a multispecies hatchery for threatened and endangered native fish recovery and for cool-water fish, such as walleye, northern pike, and sauger; warm-water fish such as smallmouth bass and catfish; and cold-water fish such as salmon. As well as other species that have had population declines at Fort Peck Lake in recent years. The project is authorized at $20,000,000.

Local Cooperation. Section 325 of WRDA 2000 applies. The legislation requires that the State of Montana be credited for all costs of stocking Fort Peck Lake during the period beginning January 1, 1947 and the costs to the State of Montana and the counties having jurisdiction over land surrounding Fort Peck Lake of construction of local access roads to the lake. When the project is completed, the operation, maintenance, repair, and replacement of the hatchery will be a non-Federal responsibility except for the costs of operation and maintenance associated with raising threatened or endangered species.

Operations During FY. Design of the intake structure was completed. Construction of the intake structure was substantially complete by year-end. Design of the rearing ponds and hatchery complex was completed. Construction of the rearing ponds and hatchery complex began and has an estimated completion date of early fall 2005.

32. HIDDEN LAKE/GREAT MARSH, NE

Location. A historic backwater adjacent to Missouri River miles 602.5-603.5, and a nearby marsh, in Sarpy County, about 1 mile south of Omaha and adjacent to Bellevue, NE.

Existing Project. The project being modified is the Missouri River Navigation and Bank Stabilization Project. The Hidden Lake modification is restoring a historic backwater of the river to restore fish breeding, brood rearing, resting and feeding habitat, and to benefit the riverine ecosystem as a whole. A one mile long backwater lake which was filled with sediment in a rare flood event has been excavated and reconnected at its downstream end to the river. The Great Marsh modification has removed sediment and encroaching plants to deepen and expand a marshy wetland, extending its life and benefiting the aquatic community. About 40 acres of wetland were excavated at an average of two feet deeper, increasing the marsh also in size. Total project costs are $3,015,471, with a Federal share of $2,261,604.

Local Cooperation. Section 1135 of 1986 WRDA applies. Papio-Missouri River Natural Resources District provided all needed cost sharing including real estate interests.

Operations During FY. Construction is complete. O&M Manuals, Real Estate certification and project closeout were completed in FY 2003 and the project has been turned over to the local Sponsor.

33. LOWER DECATUR, NE

Location. The Missouri River's right (west) overbank including side channels, from river mile 684.5 to 689 on the Missouri River in Burt County, NE, about 2 miles southeast of Decatur, NE.

Existing Project. Modification of the Missouri River Bank Stabilization and Navigation Project (MRBSN) constructed from 1935 to 1982. Lower Decatur Bend is one of many bend cutoffs (straightenings) created by the Corps during channelization of the Missouri River for navigation and bank stabilization. The proposed project modification includes 3 main off-stream aquatic components: side-channel restoration, lowering of the riverward extent of closure spur dikes, and revetment lowering over an extended length to allow river flows to erode the river bank behind the revetment, thereby increasing the top width of the channel over an extended area. An opportunity exists at Lower Decatur Bend to restore the physical habitat to configurations more similar to those that existed prior to the channelization of this reach of the river. Total Project costs are estimated at $6,058,000, with a Federal share of $4,543,000.

Local Cooperation. Section 1135 of 1986 WRDA applies. The Papio-Missouri River Natural Resources District is providing all needed cost sharing, including real estate interests valued at approximately $574,000 and cash of about $941,000.

Operations During FY. Feasibility studies were completed. Plans and specifications were ongoing in FY 2003. Construction of the project is scheduled for initiation late in FY 2004.

34. MISSOURI RIVER FISH & WILDLIFE MITIGATION, IA, NE, KS, & MO

Location. The project extends along the Missouri River from Sioux City, IA, to the mouth near St. Louis, Mo.

Existing Project. To mitigate a portion of the fish and wildlife habitat losses resulting from the construction and operation of the Missouri River Bank Stabilization

and Navigation project. Estimated total cost of the project is $3,059,687,000 federal funds.

Local Cooperation. This project has no cost-sharing sponsor. The entire project is being borne by the Federal government with no cost to either local governments or the affected states. Therefore, no Project Cooperation Agreement is required. Although the four affected states are not participating financially in the project, the states are very actively involved in the planning and design of the project. The states also are participating in the project by furnishing perpetual easements for construction and operation on existing state-owned lands. The states of Missouri and Iowa are the primary donors of such easements.

Operations During FY. Efforts have started on acquisition of an additional 118,650 acres of land. Construction was completed on Tieville-Decatur Bends. Construction was started on river structure modifications. Plans and Specifications for Kansas Bend and Glovers Point Bend were completed. Other shallow water habitat efforts continue.

35. NATHAN'S LAKE/DEER CREEK AQUATIC HABITAT IMPROVEMENT, NE

Location: The project is located in the Missouri River floodplain, several remnant wetland basins and a ditched creek channel, from river mile 632.8 to 633.5 on the Missouri River in Washington County, Nebraska, about 3 miles north of Omaha and 4 miles southeast of Ft. Calhoun, Nebraska.

Existing Project. Construction of Nathan's Lake and Mud Lake islands and shallow fingers, expansion of wetland areas, construction of a diversion sediment basin and the west ditch and west berm. Additional work will include emphasis on palustrine emergent wetland benefits as well as stream riparian restoration related to those wetlands and the river. This is the first Section 206 project authorized for study nationwide and the work will be a component of the sponsor's Missouri River Corridor Plan.

Local Cooperation. Section 206 of the Water Resources Development Act of 1996 (P.L. 104-303), as amended applies. The Papio-Missouri River Natural Resources District is the local sponsor and providing all necessary cost sharing including real estate interests.

Operations During FY. Approximately 10 acres of site, including disposal area, were seeded with native grasses and forbs. Initiated draft of O&M Manuals. Final O&M Manuals, Real Estate certification and project closeout are projected for completion in 2004.

36. RURAL MONTANA, MT

Location. This authority is to establish a program for providing environmental assistance to non-federal interests in rural Montana. In fiscal year 2002 the Corps of Engineers was directed to give consideration to projects at Helena, Laurel and Conrad, Montana.

Existing Project. The authorization will establish a program for providing environmental assistance to non-federal interests in Montana. Assistance may be in the form of design and construction assistance for water related environmental infrastructure and resource protection and development projects. There is authorized to be appropriated $25,000,000 for this program.

Local Cooperation. Section 595 of WRDA 1999 applies. The Federal share of project costs under each local cooperation agreement entered into shall be 75 percent and may be provided in the form of grants or reimbursements.

Operations During FY. The construction of the water intake at Laurel, Montana was completed. A cooperation agreement was executed with the City of Helena, Montana in June of 2003. Negotiations with the City of Conrad, Montana were initiated.

37. UPPER CENTRAL PLATTE VALLEY COLFAX REACH, CO

Location. The project is 13 miles downstream of Chatfield Reservoir on the South Platte River in the City and County of Denver from just upstream of Lakewood Gulch to approximately 500 feet downstream of Interstate 25. The length of the reach is approximately 3000 feet.

Existing Project. The project will reestablish and improve the ecosystem structures and functions by restoring fish and wildlife habitat through

environmentally sensitive bank modification and creating a low flow meandering channel which existed in the past. Rock jetties, drop structures and a 250 cfs low flow channel will be included as project features. Wetlands and riparian communities will be reestablished along the east bank to create an improved wildlife corridor. Total project costs are currently estimated at $6,000,000 with a Federal share of $4,500,000.

Local Cooperation. Section 1135 of 1986 WRDA applies. The Greenway Foundation with the support of the City Of Denver is providing all needed cost sharing including real estate interests.

Operations During FY. Project is complete with the exception of monitoring of project vegetation. Contractor to watch the site until April 2004 at which time the project will be turned over to the Sponsor.

38. WEHRSPANN LAKE AQUATIC

Location. The existing Papio Dam #20 and its Wehrspann Lake are located on a tributary to the South Branch Papillion Creek, West Branch Papillion Creek Basin, Sarpy County, NE, about 4 miles southwest of Omaha. The subimpoundment is located in the headwaters of Wehrspann Lake, within the lake's flood control pool, and within the existing project's boundaries.

Existing Project. Wehrspann Lake Aquatic Improvement Project - Modification of Wehrspann Lake, completed in 1984 as Papio Dam #20 for flood control and recreation. Wehrspann Lake site is located within Omaha, NE metropolitan area, and as such it is highly visible, heavily utilized and important ecological, recreational, and educational resource. The modification, a subimpoundment in the lake's flood control pool, will play an essential role in maintaining water quality and fish habitat within Wehrspann Lake by decreasing the amounts of influent nutrients and especially sediment. Total project costs are currently estimated at $2,660,000 with a Federal share of $1,995,000.

Local Cooperation. Section 1135 of 1986 WRDA applies. Papio-Missouri River Natural Resources District is providing all needed cost sharing including real estate interests.

Operations During FY. Although project construction was substantially complete in FY 2001, there are several minor modifications pending. During FY 2003, a contract for installation of relief wells and additional riprap was completed. Additional work is planned for FY 2004 to replace mitigation plantings and seal the surface of the spillway.

Multiple Purpose Projects Including Power

39. BIG BEND DAM-LAKE SHARPE, MISSOURI RIVER BASIN, SD

Location. On the Missouri River, 987.4 miles above the mouth, near Fort Thompson, SD, and approximately 20 miles upstream from Chamberlain, SD. Dam is located in the upstream reach of Fort Randall reservoir (Lake Francis Case). Big Bend reservoir (Lake Sharpe) extends upstream to Pierre, SD.

Existing Project. A rolled earth-fill dam 95 feet high, with a crest length of 10,570 feet, a hydroelectric generating plant consisting of five 58,500 kilowatt units, three 67,276 kilowatt units, and a chute-type gated spillway. Reservoir provides gross storage of 1,859,000 acre-feet. Federal cost of the project was $107,498,000. Construction began in September 1959 and was completed in September 1977, except for Code 710 recreation facilities.

Local Cooperation. None required except for recreation cost-sharing.

Operation During FY. Maintenance: Project was operated in conjunction with other Missouri River reservoirs for flood control, power production and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. During the period, 838,916,000 net kilowatt-hours of electricity were produced.

40. FORT PECK DAM AND LAKE, MT

Location. The reservoir is in the Missouri River Valley in McCone, Valley, Garfield, Phillips, Petroleum, and Fergus Counties, MT. Dam is approximately 1,771.6 miles above the mouth of the Missouri River. Nearest towns are Glasgow, 17 miles northwest; and Nashua, nine miles north.

Existing Project. A hydraulic earthfill dam with a

maximum height of 251 feet, with a crest length of 21,026 feet, and a reservoir for flood control, irrigation, navigation, hydroelectric power, and other purposes, with a gross storage capacity of 18,688,000 acre-feet at maximum operating pool. Work started on the original project in October 1933 and on the second power plant in August 1956. The project was completed in 1965. The power installations at the project were updated in FY 1979. The five generators have a total output of 185,250 KW: two generators at 40,000 KW each, two generators at 43,500 KW each and one generator at 18,250 KW. See page 818 of 1965 Annual Report and page 905 of 1958 Annual Report for project details. Federal cost of the project was $158,428,000,

Local Cooperation. None required except for recreation cost-sharing.

Operations During FY. Maintenance: Project was operated in conjunction with the other Missouri River reservoirs for flood control, navigation, power production, and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. Generating facilities produced 831,095,000 net kilowatt hours of electricity.

41. FORT RANDALL DAM-LAKE FRANCIS CASE, MISSOURI RIVER BASIN, SD

Location. Located on the Missouri River in Charles Mix and Gregory Counties, SD, about 82 miles above Yankton, SD. Site is 880 miles above the mouth of the Missouri River and 148 miles above Sioux City, IA.

Existing Project. A rolled earth-fill dam with a maximum height of 165 feet; a crest length of 10,700 feet; and a reservoir for flood control, irrigation, navigation, hydroelectric power, and other purposes, with a gross storage capacity of 5,494,000 acre-feet at maximum operating pool. The power installation consists of eight units rated at 40,000 kilowatts each. Construction began in May 1946 and was completed in 1969, except for Code 710 recreation facilities. Federal cost of the project was $199,066,000. Non-Federal contribution for constructing approaches to the Platte-Winner Bridge was $720,000.

Local Cooperation. None required except for recreation cost-sharing and bridge approaches.

Operations During FY. Maintenance: Project was operated in conjunction with other Missouri River reservoirs for flood control, navigation, power production, and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. Generating facilities produced 1,495,524,000 net kilowatt hours of electricity.

42. GARRISON DAM MAJOR REHABILITATION, LAKE SAKAKAWEA, ND

Location. Located on the Missouri River in McLean and Mercer Counties, ND, about 11 miles south of Garrison, ND, and 9 miles west of Coleharbor, ND, 1,389.9 miles about the mouth and 75 miles above Bismarck.

Existing Project. Garrison Dam is a multi-purpose project consisting of a rolled earth-filled dam with a sheet pile cutoff, a hydroelectric power plant, and a reservoir with storage capacity of 23,821,000 acre feet for flood control, navigation, power, recreation, irrigation, and municipal water supply. This major rehabilitation project will replace the turbine runners on all five existing units with new runners designed to improve reliability and maximize efficiency over a broad range of operating conditions for a total project cost of $55,363,000.

Local Cooperation. None required.

Operations During FY. Manufacturing of the wicket gates, turbine runners, and generator components continued throughout the year. The current contract is scheduled for completion in June of 2005. A supplemental rehabilitation report addressing transformers and the switchyard was 90% complete. The finalized report will be published in the second quarter of FY 2004.

43. GARRISON DAM-LAKE SAKAKAWEA, MISSOURI RIVER BASIN, ND

Location. Located on the Missouri River in McLean and Mercer Counties, ND, about 11 miles south of Garrison, ND, and 9 miles west of Coleharbor, ND. 1,389.9 miles above the mouth and 75 miles above Bismarck, ND.

Existing Project. A rolled earth-fill dam 11,300 feet long with a maximum height of 210 feet, and a reservoir for flood control, irrigation, navigation, hydroelectric

power, and other purposes, with a gross storage capacity of 23,821,000 acre-feet. It provides five power units (three units rated at 109,250 kilowatts each and two units rated at 95,000 kilowatts each), three flood control tunnels, and a gated spillway. Federal cost of the project was $299,938,000, including $4,208,000 for major rehabilitation. Non-Federal contribution in connection with widening Snake Creek Embankment was $687,000. Construction of the project was initiated in April 1946 and completed in 1966, except for recreational development using Code 710 funds.

Local Cooperation. None required except cost-sharing with the state of North Dakota for widening the Snake Creek Embankment and recreation cost-sharing.

Operations During FY. Maintenance: Project was operated in conjunction with other Missouri River reservoirs for flood control, navigation, power production, and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. Generating facilities produced 1,841,808,000 net kilowatt hours of electricity.

44. GAVINS POINT DAM-LEWIS AND CLARK LAKE, MISSOURI RIVER BASIN, NE AND SD

Location. On the Missouri River in Yankton County, SD, and Knox County, NE, about four miles upstream from Yankton, SD, and 811.1 miles above the mouth.

Existing Project. A concrete and rolled earth-fill dam with a maximum height of 74 feet, and a reservoir for flood control, irrigation, navigation, hydroelectric power, and other purposes, with a gross storage capacity of 492,000 acre-feet at maximum operating pool. The power installation consists of three units rated at 44,099 kilowatts each. Federal cost of the project was $49,617,000.Construction of the original project was initiated in March 1952 and completed in 1964.

Local Cooperation. None required except for recreation cost-sharing.

Operations During FY. Maintenance: Project was operated in conjunction with other Missouri River reservoirs for flood control, navigation, power production, and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. Generating facilities produced 709,023,000 net kilowatt hours of electricity during FY 2003.

45. OAHE DAM-LAKE OAHE, MISSOURI RIVER BASIN, SD AND ND

Location. Dam is on the Missouri River in Hughes and Stanley Counties, SD, about six miles northwest of Pierre, SD, and 1,072.3 miles above the mouth.

Existing Project. A rolled earth-fill dam with maximum height of 245 feet; a crest length of 9,300 feet; and a reservoir for flood control, irrigation, navigation, hydroelectric power, and other purposes, with a gross storage capacity of 23,137,000 acre-feet at maximum operating pool. It contains seven power units rated at 112,290 kilowatts each. Federal cost of the project was $346,521,000. Construction was initiated in August 1948 and the project was placed in operation in June 1963.

Local Cooperation. None required except for recreation cost-sharing.

Operations During FY. Maintenance: Project was operated in conjunction with other Missouri River reservoirs for flood control, navigation, power production, and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. Generating facilities produced 2,011,096,000 net kilowatt hours of electricity.

46. MISSOURI RIVER, BETWEEN FT. PECK DAM, MT AND GAVINS POINT DAM, SD, NE

Location. The project is located along the Missouri River between Fort Peck Dam, MT, and a point 59 miles downstream of Gavins Point Dam, SD and NE.

Existing Project. Consists of undertaking measures, including maintenance and rehabilitation of existing structures, to alleviate bank erosion and related problems associated with releases from the six Missouri River main stem dams that the Secretary determines will be needed. In lieu of structural measures, lands may be acquired in affected areas from willing sellers. The costs of the

measures shall be apportioned among project purposes as a joint-use operation and maintenance expense. Estimated Federal cost of the project is between $140 million for construction or $14 million for the land requisition alternative. Cost is limited to no more than $3 million per FY.

Local Cooperation. Non-federal funds are not required for this project. One reach, the Missouri National Recreational River downstream from Gavins Point Dam, requires, under its separate authorization, that the landowners make available appropriate land interests to maintain the recreational and scenic qualities of the river and adjacent lands. In the other river reaches, lands can be acquired on a willing-seller basis if land acquisition is the recommended measure for erosion control at a given river site.

Operations During FY. Continued coordination for sloughing easements in pursuit of real estate acquisitions in response to requests from landowners. Monitored previously constructed Section 33 projects. Continued EIS/cumulative impacts study to determine effects of bank erosion.

47. PIERRE, SD

Location. The project area consists of the Missouri River just downstream of Oahe Dam near Pierre and Fort Pierre, South Dakota.

Existing Project. The legislation authorizes that the Secretary may acquire from willing sellers such land and property in the vicinity of Pierre, South Dakota or flood proof or relocate such property within the project area, as the Secretary determines is adversely affected by the full wintertime Oahe Powerplant releases. Total cost of this project is held at $35,000,000 by authorizing legislation.

Local Cooperation. This project has no cost-sharing sponsor. The entire project is completely federally financed as the mitigation is for a problem caused by the Oahe Dam project. By funding the project 100 percent Federal, the costs are allocated to the Oahe Project with 45.83 percent of the costs considered as joint costs to allocate for repayment by the Western Area Power Administration (WAPA). When WAPA invokes the sub-allocation of 15.8 percent of power costs to future irrigation, the 45.83 percent joint use costs will actually result in a final cost share of 38.6 percent to be repaid by non-Federal interests.

Operations During FY. Throughout the year, coordination with affected property owners to prioritize and finalize buyback or flood proofing remedies for each tract affected occurred. One hundred thirty four tracts and their affected owners received reimbursement under this project authority to date. Ongoing appraisal activities, title evidence, and acquisition of one hundred three tracts with multiple owners resulted in relocation actions under the authority of PL 91-646. Owner's policies, warranty deeds and closing actions were also completed.

Miscellaneous

48. MISSOURI RIVER MASTER WATER CONTROL MANUAL REVIEW AND UPDATE

Location. The area being studied is the Missouri River basin, to include the Missouri River Mainstem Reservoir System (System). States included in the study area include Nebraska, Montana, North Dakota, South Dakota, Iowa, Kansas, and Missouri.

Existing Project. The Missouri River Master Water Control Manual (Master Manual) sets forth the guidelines for the operation of the System for the Congressionally authorized project purposes of flood control, hydropower, water supply, water quality, irrigation, navigation, recreation, and fish and wildlife. During the late 1980's, the Missouri River basin experienced a moderate to severe drought, impacting upon the System for the first time since filled in 1967. The Master Manual Review and Update was initiated in 1989 as a result of the severe impacts on people and industries that use the Missouri River.

There are a myriad of complex operational and resource management issues. Upriver interests want high, stable lake levels to address recreation, irrigation and hydropower needs. Environmental interests seek a hydrograph that more closely approximates the natural hydrograph of the Missouri River. Downriver interests (below the dams) support different flow regimes for commercial navigation, flood protection, municipal water supply, and thermal generation. The Corps objective is to implement a water control plan that meets the contemporary needs of the basin, serves Congressionally authorized project purposes, complies with environmental laws including the Endangered Species Act, and fulfills

the Corps responsibilities to Native American Tribes.

Local Cooperation. None required.

Operations During FY. The Northwestern Division (NWD) made considerable progress during the past year in moving the National Environmental Policy Act (NEPA) process forward.

On 31 August 2001, the Northwestern Division released a Revised Draft Environmental Impact Statement (RDEIS) that identified the impacts associated with six alternative water control plans for the Missouri River Mainstem System, but did not identify a preferred alternative (PA). Release of the RDEIS marked the beginning of a 6-month public comment period during which the Corps held 19 workshops and 20 Tribal and public hearings at numerous locations throughout the Missouri and Mississippi River basins. Through 28 February 2002, approximately 55,000 oral, written, and electronic comments were received. Subsequently, the Corps reviewed and evaluated all Tribal and public comments received on the RDEIS, all information developed during the course of the study effort, the Biological Opinion (BiOp) and the National Academy of Sciences Report for the Missouri River.

The Corps and U.S. Fish & Wildlife Service (USFWS) have continued informal consultation on the current operation of the Mainstem Reservoir System. Considerable progress was made by the agencies in resolving complex and controversial endangered species issues and on a programmatic approach to recovery of Missouri River protected species and the ecosystem on which they depend. On 21 July 2003, the Corps and the USFWS entered into formal Endangered Species Act (ESA) consultation and a Biological Assessment (BA) was provided to the USFWS on 30 July 2003. The BA reflects a new action for consultation with the USFWS. In accordance with ESA and USFWS regulations, the outcome may be a new BiOp.

The results of the formal consultation will inform a preferred alternative (PA) for presentation in the Final Environmental Impact Statement (FEIS) for the Master Manual Review and Update. The FEIS will be prepared addressing the Tribal and public comments received in response to the RDEIS and will present the impacts of the PA. A comment period will follow release of the FEIS, followed by preparation of a Record of Decision and implementation of revised Water Control Plan. The Corps intends to implement the revised Water Control Plan in 2004. In addition, the Administration announced that funding would be added to the 2004 budget for Missouri River ecosystem restoration.

49. NATIONAL EMERGENCY PREPAREDNESS PROGRAM (NEPP) AND SUPPORT FOR FEMA

P. L. 93-288 (and Antecedent Legislation)

Continuity of Operations (510)	$ 0
National Preparedness Planning (520)	6,257
Emergency Operations Center Support (530)	0
Catastrophic Disaster Training and Exercise (560)	0
Total Catastrophic Disaster Preparedness Program	$ 6,257

50. FLOOD CONTROL AND COASTAL EMERGENCIES (FC&CE)

Flood control work under Authorization Emergency Flood Control Activities, Flood Fighting. P. L. 84-99.

Disaster Preparedness (100)	$ 497,044
Emergency Operations (200)	25,215
Rehabilitation and Inspection Program (300)	151,446
Advance Measures (500)	0
Hazard Mitigation (600)	1,880
Reimbursable Activities (900)	226,505
Total FC&CE	$ 902,090

51. GENERAL REGULATORY FUNCTIONS

Permit Evaluation	$ 5,124,923
Enforcement	919,431
Studies	230,021
Environmental Impact Statement	109
Administrative Appeals	0
Reimbursable Activities	148,258
Total Regulatory	$ 6,422,742

52. GENERAL INVESTIGATIONS

FY 2003 non-reimbursable costs totaled $2,063,308 for all General Investigation activities. See Table 26-K which covers Surveys, Collection and Study of Basic Data, Research and Development, Preconstruction Engineering and Design (projects not fully authorized), Planning and Engineering under Proposed Program

Legislation, and Preconstruction Engineering and Design
(fully authorized projects).

TABLE 26-A **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
1.	Missouri River, Sioux City, IA to Mouth (Sioux City, IA to Rulo NE)	New Work:					
		Approp.	------	------	------	------	189,225,991 1/
		Cost.	------	------	------	------	189,225,991 1/
		Maint:					
		Approp.	2,001,438	1,948,268	2,074,500	2,709,300	136,315,956
		Cost.	1,986,394	1,957,234	2,077,431	2,681,264	136,284,257
3.	Aberdeen & Vicinity, SD	New Work:					
		Approp.	5,000	------	------	------	839,759
		Cost.	44,760	3,948	------	------	839,747
	Required Contributed Funds	New Work:					
		Approp	250,000	------	------	------	280,084
		Cost.	20,744	27,326	11,717	35,608	99,934
	Consolidated Summary	New Work:					
		Approp.	255,000	------	------	------	1,119,843
		Cost.	65,504	31,274	11,717	35,608	939,681
4.	Antelope Creek, Lincoln, NE	New Work:					
		Approp.	------	261,354	344,000	3,699,000	4,304,354
		Cost.	------	215,436	382,002	3,704,606	4,302,044
	Required Contributed Funds	New Work:					
		Approp	------	127,200	73,000	1,025,049	1,225,249
		Cost.	------	------	170,803	858,398	1,029,201
	Consolidated Summary	New Work:					
		Approp.	------	127,200	417,000	4,724,049	5,529,603
		Cost.	------	215,436	552,805	4,563,004	5,331,245
5.	Bear Creek Lake, CO	New Work:					
		Approp.	------	------	------	------	62,018,608
		Cost.	------	------	------	------	62,018,608
		Maint:					
		Approp.	540,276	353,686	492,000	268,000	7,368,271
		Cost.	534,838	356,477	440,001	318,819	7,363,748
6.	Big Sioux River and Skunk Creek Sioux Falls, SD	New Work					
		Approp.	525,000	3,696,000	3,461,000	1,374,000	9,056,000
		Cost.	297,450	3,892,130	3,285,979	1,558,190	9,033,749
	Required Contributed Funds	New Work:					
		Approp	------	450,000	150,000	230,000	830,000
		Cost.	------	------	168,817	514,594	683,411
	Consolidated Summary	New Work:					
		Approp.	525,000	4,146,000	3,611,000	1,604,000	9,886,000
		Cost.	297,450	3,892,130	3,454,796	2,072,784	9,717,160

1/ Includes $18,325,581 National Industrial Recovery Act funds, $8,625,718 Emergency Relief Funds, and $1,181,125 for previous project.

TABLE 26-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
7.	Bowman-Haley Lake, ND	New Work:					
		Approp.	------	------	------	------	4,372,174
		Cost.	------	------	------	------	4,372,174
		Maint:					
		Approp.	186,830	255,082	141,543	147,000	4,714,725
		Cost.	186,978	233,038	142,488	146,704	4,712,961
8.	Buford Trenton Irrigation District, ND (Land Acquisition)	New Work:					
		Approp.	5,760,000	6,891,872	5,751,000	2,316,000	25,345,872
		Cost.	5,852,428	6,920,466	5,749,811	2,320,699	25,336,430
9.	Chatfield Lake, CO	New Work:					
		Approp.	------	------	------	------	95,444,010
		Cost.	------	------	------	------	95,444,010
	Required Contributed Funds	New Work:					
		Approp.	------	------	------	------	1,315,328
		Cost.	------	------	------	------	1,315,328
	Consolidated Summary	New Work:					
		Approp.	------	------	------	------	96,759,338
		Cost.	------	------	------	------	96,759,338
		Maint:					
		Approp.	831,042	1,306,828	1,305,682	893,000	18,316,782
		Cost.	826,005	1,305,317	1,308,770	868,013	18,288,071
10.	Cherry Creek Lake, CO	New Work:					
		Approp.	------	------	------	------	15,220,364
		Cost.	------	------	------	------	15,220,364
		Maint.					
		Approp.	396,322	620,480	517,000	478,000	16,929,276
		Cost.	398,121	615,964	523,565	477,671	16,927,386
11.	Fall River Basin, SD (Cottonwood & Coldbrook)	New Work:					
		Approp.	------	------	------	------	5,538,432
		Cost.	------	------	------	------	5,538,432
		Maint.					
		Approp.	690,966	347,163	462,000	484,000	9,954,330
		Cost.	694,703	343,115	464,565	483,277	9,950,262
12.	Logan Creek Pender, NE	New Work:					
		Approp.	14,000	(7,000)	7,000	15,000	4,177,113
		Cost.	48,037	45,500	12,076	16,409	4,175,591
	Required Contributed Funds	New Work:					
		Approp.	------	------	------	------	394,090
		Cost.	32,388	6,686	3,703	17,012	384,525
	Consolidated Summary	New Work:,					
		Approp.	14,000	(7,000)	7,000	15,000	4,571,203
		Cost.	80,425	52,186	15,779	33,421	4,560,116

TABLE 26-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
13.	Milk River, Malta, MT	New Work:					
		Approp.	------	(4,000)	1,500	------	1,481,118
		Cost.	1,678	3,019	5,270	597	1,481,071
	Required Contributed Funds	New Work:					
		Approp.	------	------	------	------	222,720
		Cost.	------	------	1,050	6,289	213,276
	Consolidated Summary	New Work:					
		Approp.	------	(4,000)	1,500	------	1,703,838
		Cost.	1,678	3,019	6,320	6,886	1,694,347
14.	Missouri National Recreational River NE& SD	New Work:					
		Approp.	900,000	983,000	3,327,000	1,232,500	9,107,759
		Cost.	777,252	1,176,555	3,377,523	1,327,861	9,103,076
	Required Contributed Funds	New Work:					
		Approp.	12,774	16,500	------	------	669,274
		Cost.	7,500	7,722	------	------	655,222
	Consolidated Summary	New Work:					
		Approp.	912,774	999,500	3,327,000	1,232,500	9,777,033
		Cost.	784,752	1,184,277	3,377,523	1,327,861	9,758,298
		Maint.					
		Approp.	241,879	(17)	275,000	228,000	3,438,862
		Cost.	246,985	727	198,357	230,082	3,364,301
15.	Missouri River Kenslers Bend, NE, to Sioux City, IA	New Work:					
		Approp.	------	------	------	------	11,294,414
		Cost.	------	------	------	------	11,294,414
		Maint.					
		Approp.	145,555	134,144	132,500	135,000	5,568,618
		Cost.	145,685	132,130	133,338	135,825	5,568,267
16.	Nishnabotna River, Hamburg, IA	New Work:					
		Approp.	50,000	3,000	(500)	(2,000)	1,369,100
		Cost.	49,949	11,687	3,192	730	1,368,980
	Required Contributed Funds	New Work:					
		Approp.	------	------	------	------	359,887
		Cost.	10,490	17,235	4,939	------	358,910
	Consolidated Summary	New Work:					
		Approp.	50,000	3,000	(500)	(2,000)	1,728,987
		Cost.	51,439	28,922	8,131	730	1,727,890

TABLE 26-A (continued) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
17.	Papillion Creek and Tributaries Lakes, NE	New Work:					
		Approp	------	------	(6,500)	(60,045)	66,545,670 2/
		Cost.	2,040	56	------	(59,992)	66,545,670 2/
	Required Contributed Funds	New Work:					
		Approp.	------	------	------	------	955,000
		Cost.	------	56	------	70,264	955,000
	Consolidated Summary	New Work:					
		Approp.	------	------	(6,500)	(60,045)	67,500,670
		Cost.	2,040	56	112	10,272	67,500,670
		Maint:					
		Approp.	598,822	611,050	658,000	501,000	12,035,316
		Cost.	599,595	609,138	659,892	498,375	12,031,420
18.	Pebble Creek Scribner, NE	New Work:					
		Approp.	------	------	(3,000)	(600)	2,717,128
		Cost.	258	------	------	80	2,717,034
	Required Contributed Funds	New Work:					
		Approp	------	------	------	------	435,656
		Cost.	------	------	------	1,040	420,920
	Consolidated Summary	New Work:					
		Approp.	------	------	(3,000)	(600)	3,152,784
		Cost.	258	------	------	1,120	3,137,954
19.	Perry Creek, IA	New Work:					
		Approp.	13,900,000	468,000	(28,000)	(86,700)	35,784,785
		Cost.	13,212,961	1,440,218	65,402	(74,288)	35,744,004
	Required Contributed Funds	New Work:					
		Approp.	642,718	716,002	------	------	2,608,720
		Cost.	608,778	71,977	306,098	478,539	2,575,836
	Consolidated Summary	New Work:					
		Approp.	14,542,718	1,184,002	(28,000)	(86,700)	38,393,505
		Cost.	13,821,739	1,512,195	371,500	404,251	38,319,840
21.	Pipestem Lake, ND	New Work:					
		Approp.	------	------	------	------	9,277,545
		Cost.	------	------	------	------	9,277,545
		Maint:					
		Approp.	598,307	361,938	478,476	434,000	10,112,125
		Cost.	597,556	359,956	480,159	428,296	10,105,052
22.	Salt Creek and Tributaries, NE	New Work:					
		Approp.	------	------	------	------	12,197,621 3/
		Cost.	------	------	------	------	12,197,621 3/
		Maint.					
		Approp.	725,646	655,088	729,000	726,000	18,775,010
		Cost.	725,776	650,977	732,945	722,952	18,770,757

2/ Does not include $1,854,338 cost of inactive sites.
3/ Includes $123,000 of government cost applicable to that portion of the project which is currently being carried in a deferred status.

TABLE 26-A (continued) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
24.	Van Bibber Creek, CO	New Work:					
		Approp.	(7,200)	47,000	133,000	71,000	1,317,589
		Cost.	10,401	62,188	127,656	79,524	1,317,284
	Required Contributed Funds	New Work:					
		Approp.	------	------	------	------	125,200
		Cost.	------	------	------	------	125,200
	Consolidated Summary	New Work:					
		Approp.	(7,200)	47,000	133,000	71,000	1,442,789
		Cost.	10,401	62,188	127,656	79,524	1,442,484
25.	Wood River, Grand Island, NE	New Work:					
		Approp.	386,000	991,128	1,398,000	4,614,000	8,389,128
		Cost.	409,029	1,240,249	1,442,676	4,591,324	8,351,285
	Required Contributed Funds	New Work:					
		Approp.	------	------	221,026	488,974	710,000
		Cost.	------	------	------	516,614	516,614
	Consolidated Summary	New Work:					
		Approp.	386,000	991,128	1,619,026	5,102,974	9,099,128
		Cost.	409,029	1,240,249	1,442,676	5,107,938	8,867,899
26.	Inspections of Completed Local Protection Projects	Maint.					
		Approp.	160,269	229,200	221,000	251,000	6,318,945
		Cost.	160,371	229,743	219,972	250,512	6,317,429
27.	Scheduling Flood Control Reservoir Operations	Maint.					
		Approp.	345,996	300,039	303,000	335,000	10,700,719
		Cost.	348,525	299,610	298,986	338,126	10,699,137
29.	California Bend, NE	New Work					
		Approp.	200,495	75,000	------	1,960,000	2,680,995
		Cost.	192,614	78,036	9,265	1,954,134	2,673,266
	Required Contributed Funds	New Work.					
		Approp.	100,000	------	------	250,000	350,000
		Cost.	3,985	38,424	46,330	186,165	274,904
	Consolidated Summary	New Work.					
		Approp.	300,495	75,000	------	2,210,000	3,030,995
		Cost.	196,599	116,460	55,595	2,140,299	2,948,170
30.	Cheyenne River Sioux Tribe, Lower Brule Sioux Tribe, and State of SD Terrestrial Wildlife Habitat Restoration, SD	New Work.					
		Approp.	2,500,000	4,636,855	7,390,000	8,362,000	22,888,855
		Cost.	893,862	6,058,974	7,368,425	6,984,819	21,306,080
		Maint:					
		Approp.	------	------	------	4,758,980	4,758,980
		Cost.	------	------	------	4,758,980	4,758,980
31.	Fort Peck Fish Hatchery, Fort Peck, MT	New Work:					
		Approp.	------	------	1,540,000	3,517,000	5,057,000
		Cost.	------	------	1,395,145	3,338,512	4,733,657

TABLE 26-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
32.	Hidden Lake/ Great Marsh, NE	New Work. Approp.	15,000	15,000	5,000	5,604	2,261,604
		Cost.	12,600	15,172	14,466	6,101	2,261,604
	Required Contributed Funds	New Work: Approp.	------	------	------	14,050	664,050
		Cost.	(1,358)	879	4,833	17,147	664,050
	Consolidated Summary	New Work. Approp.	15,000	15,000	5,000	19,654	2,925,654
		Cost.	11,242	16,051	19,299	23,248	2,925,654
33.	Lower Decatur, NE	New Work. Approp.	205,000	70,000	90,000	63,500	1,103,500
		Cost.	178,845	86,400	100,051	78,423	1,101,208
34.	Missouri River Fish & Wildlife Mitigation, IA, NE, KS, MO	New Work: Approp.	4,700,000	2,075,000	3,978,000	6,078,000	39,094,000
		Cost.	4,258,705	3,377,896	4,023,429	5,813,772	38,807,338
35.	Nathan's Lake/ Deer Creek Aquatic Habitat Improvement, NE	New Work. Approp.	135,000	143,000	86,000	35,000	524,000
		Cost.	19,178	254,312	90,293	32,244	519,321
	Required Contributed Funds	New Work. Approp.	------	72,000	------	------	122,000
		Cost.	18,241	22,281	50,548	------	121,986
	Consolidated Summary Funds	New Work. Approp.	135,000	215,000	86,000	35,000	646,000
		Cost.	37,419	276,593	140,841	32,244	641,307
36.	Rural Montana, Montana	New Work. Approp.	------	------	410,000	175,000	585,000
		Cost.	------	------	408,203	174,208	582,411
37.	Upper Central Platte Valley, Colfax Reach	New Work. Approp.	536,000	1,280,000	2,565,000	98,000	4,479,000
		Cost.	524,733	1,257,845	2,476,414	188,037	4,447,029
38.	Wehrspann Lake Aquatic	New Work. Approp.	273,000	14,000	18,000	100,000	2,079,000
		Cost.	349,497	14,147	9,528	83,908	2,054,368
	Required Contributed Funds	New Work. Approp.	94,000	------	38,000	27,500	665,500
		Cost.	223,616	21,394	41,985	45,717	636,088
	Consolidated Summary Funds	New Work. Approp.	367,000	14,000	56,000	127,500	2,744,500
		Cost.	573,113	35,541	51,513	129,625	2,690,456

TABLE 26-A (continued) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
39.	Big Bend Dam-Lake Sharpe, Missouri River Basin, SD	New Work:					
		Approp.	------	------	------	------	107,497,597
		Cost.	------	------	------	------	107,497,597
		Maint.					
		Approp.	6,515,756	5,840,398	5,619,227	6,836,000	140,446,954 4/
		Cost.	6,479,037	5,492,538	5,985,438	6,836,807	140,418,375 4/
40.	Fort Peck Lake, MT	New Work:					
		Approp.	------	------	------	134,035	158,562,115
		Cost.	------	------	------	114,529	158,542,609
		Maint.					
		Approp.	4,031,141	5,453,523	5,977,966	5,282,329	121,414,793 4/
		Cost.	4,078,081	5,358,928	5,188,705	4,914,772	120,155,002 4/
41.	Fort Randall Dam-Lake Francis Case, Missouri River Basin, SD	New Work:					
		Approp.	------	------	------	------	199,065,883
		Cost.	------	------	------	------	199,065,883
		Maint.					
		Approp.	7,968,478	8,267,771	8,646,611	8,500,000	212,447,994 4/
		Cost.	7,963,253	8,005,448	7,796,989	9,206,584	212,032,858 4/
42 & 43.	Garrison Dam Lake Sakakawea, Missouri River Basin, ND	New Work:					
		Approp.	------	------	------	------	295,729,613
		Cost.	------	------	------	------	295,729,613
	Federal Funds	Maint					
		Approp.	8,063,896	9,546,471	9,399,820	10,222,000	230,561,860 4/
		Cost.	8,060,510	8,928,405	9,173,004	10,526,308	230,013,968 4/
		Major Rehab:					
		Approp.	8,500,000	7,304,000	7,720,500	7,925,500	41,567,310
		Cost.	5,558,299	10,756,437	7,738,363	7,968,367	41,565,841
	Required Contributed Funds	Approp.	------	------	------	------	686,961
		Cost.	------	------	------	------	686,961
44.	Gavins Point Dam-Lewis & Clark Lake, Missouri River Basin, NE and SD	New Work:					
		Approp.	------	------	------	------	49,617,239
		Cost.	------	------	------	------	49,617,239
		Maint:					
		Approp.	5,889,002	6,494,579	6,366,842	6,227,000	156,852,835 4/
		Cost.	5,908,727	6,485,674	6,306,570	6,243,439	156,784,436 4/
45.	Oahe Dam-Lake Oahe, Missouri River Basin, SD & ND	New Work:					
		Approp.	------	------	------	------	346,520,603
		Cost.	------	------	------	------	346,520,603
		Maint:					
		Approp.	12,236,271	10,287,948	10,711,911	8,354,468	240,226,298 4/
		Cost.	12,253,913	9,970,228	10,337,770	8,598,318	239,753,063 4/

4/ Includes Special Recreation Use Fees.

TABLE 26-A (continued) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to September 30, 2003
46.	Missouri River Between Ft. Peck Dam MT & Gavins Point Dam, SD and NE	Maint.					
		Approp.	227,000	344,740	654,000	594,916	8,475,656
		Cost.	285,554	345,072	652,931	595,985	8,475,656
47.	Pierre, SD	New Work:					
		Approp.	7,500,000	6,512,000	6,904,000	4,906,200	26,162,200
		Cost.	6,009,111	7,960,685	6,831,235	4,865,674	26,005,987
48.	Missouri River Master Water Control Manual Review and Update	Maint:					
		Approp.	669,109	896,290	1,906,778	606,492	27,388,670 **5/**
		Cost.	662,650	951,193	1,637,214	595,450	27,108,064 **5/**

5/ Included in the Miscellaneous Section of the Text.

TABLE 26-B **AUTHORIZING LEGISLATION**

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
1.		**MISSOURI RIVER, SIOUX CITY, IA TO MOUTH (SIOUX CITY, IA TO RULO, NE)**	
	Jan 12, 1927	Appropriation of $12 million authorized for securing a 6 foot depth from Quindaro Bend (Kansas City, MO to Sioux City, IA).	H. Doc. 1120, 69th Cong.
	July 3, 1930	Appropriation of $15 million additional allotments totaling $29,153,108 made bv Public Works Administration under provisions of National Industrial Recovery Act of 1933, and $9,669,791 allotted under provisions of Emergency Relief Appropriations Act of 1935.	PL 71-520 PL 73-67
	Aug 30, 1935	For completion of project from mouth to Sioux City, IA.	H. Doc 238, 73rd Cong. PL 74-409
	Mar 2, 1945	For a channel of 9-foot depth and 300-foot width.	H. Doc. 214, 76th Cong. PL 79-14
3.		**ABERDEEN & VICINITY, SD**	
	Flood Control Act of 1948	Section 205 of the Flood Control Act of 1948 as amended; flood damage reduction	
4.		**ANTELOPE CREEK, LINCOLN, NEBRASKA**	Section 101(b)(19) PL 106-541
	Water Resources Development Act Of 2000	A flood control project for channel improvement upstream from the mouth of Antelope Creek to the downtown area.	
5.		**BEAR CREEK LAKE, CO**	
	Aug 13, 1968	A flood control reservoir for protection of metropolitan Denver, CO.	S. Doc. 87, 90th Cong. PL 90-483
6.		**BIG SIOUX RIVER AND SKUNK CREEK, SIOUX FALLS, SD**	
	Water Resources Development Act Of 1996	A flood control project for raising levees and diversion dams, modification of chute and stilling basin, and providing bridge improvements.	Section 101 PL 104-303
7.		**BOWMAN-HALEY LAKE, ND**	
	Flood Control Act of 1962	Flood Control reservoir and water supply.	H. Doc. 574, 87th Cong. PL 87-874
8.	Section 336(a) Water Resources Development Act Of 1996	**BUFORD TRENTON IRRIGATION DISTRICT, ND (LAND ACQUISTION)**	PL. 104-303
9.		**CHATFIELD LAKE, CO**	
	Flood control Act of 1950	Flood control reservoir and channel improvements to provide downstream protection for Denver, CO.	H. Doc. 669, 80th Cong. PL 81-516
	Water Resources Development Act of 1986	Modified 1950 Flood Control Act to operate dam and other Federal improvements to achieve authorized level of protection, beginning at dam and ending 82 miles downstream. Reassigns a portion of the storage space in the lake project to joint flood control-conservation purposes. Modified 1974 WRDA to exempt prohibition of encroachment for Mineral Ave/ Ken Caryl Rd. ext & transmission line.	H. Doc. 1013, 99th Cong. PL 99-662

TABLE 26-B (Continued) AUTHORIZING LEGISLATION

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
10.		**CHERRY CREEK LAKE, CO**	
	Aug 18, 1941	Initiation and partial accomplishment of project.	H. Doc. 426, 76th Cong. PL 77-228
	Dec 22, 1944	Completion of plan approved in Act of Aug 18, 1941.	H. Doc. 426, 76th Cong. PL 78-534
	Dec 22, 1944	General comprehensive plan, Missouri River Basin.	H. Doc. 475, and S. Docs. 191 and 247, 78th Cong. PL 78-534
11.		**FALL RIVER BASIN, SD**	
	Aug 18, 1941	Provide flood control to the town of Hot Springs, SD.	H. Doc. 655, 76th Cong. PL 77-228
12.		**LOGAN CREEK, PENDER, NE**	
	Flood Control Act of 1948	Section 205 of the Flood Control Act of 1948 as amended; flood damage reduction	
13.		**MILK RIVER, MALTA, MT**	
	Flood Control Act of 1948	Section 205 of the Flood Control Act of 1948 as amended; flood damage reduction	
14.		**MISSOURI NATIONAL RECREATIONAL RIVER, NE AND SD**	
	National Parks and Recreation Act of 1978	Preservation and enhancement of the Missouri River between the reaches from Gavins Point Dam, NE & SD to Ponca State Park, NE.	PL 95-625
15.		**MISSOURI RIVER, KENSLERS BEND, NE , TO SIOUX CITY, IA**	
	Aug 18, 1941 June 30, 1948	Construction of dike, revetments.	H. Doc. 821, 76th Cong. PL 77-228 PL 80-858
16.		**NISHNABOTNA RIVER, HAMBURG, IA**	
	Flood Control Act of 1948	Section 205 of the Flood Control Act of 1948 as amended; flood damage reduction	
17.		**PAPILLION CREEK AND TRIBUTARIES LAKES, NE**	
	Flood Control Act of 1968	Series of flood control reservoirs, providing protection for the metropolitan areas of Omaha, NE.	H. Doc. 349, 90th Cong. PL 90-485
	Water Resources Development Act of 1986	Authorized additional $4.8 million for channel improvement on Big Papillion Creek, and to Union Pacific RR bridge, recreation trail and flood warning system.	H. Doc. 1013, 99th Cong. PL 99-662
18.		**PEBBLE CREEK, SCRIBNER, NE**	
	June 30, 1948	Levee and channel improvement for local protection - Section 205.	858, 80th Cong.
19.		**PERRY CREEK, IA**	
	Water Resources Development Act of 1986 and 2000	Provide flood protection for Perry Creek, Iowa.	Section 401a, PL 99-662 Section 227 PL 106-541 Section 151 PL 108-357

TABLE 26-B (Continued) AUTHORIZING LEGISLATION

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
20.		**PICK-SLOAN MISSOURI BASIN PROGRAM (OMAHA DIST.)**	
	June 28, 1938	Adopted general comprehensive plan for Missouri River basin and authorized $9 million for initiation and partial accomplishment.	Flood Control Committee Doc. 1, 75th Cong. PL 75-761
	Aug 18, 1941	Modified general comprehensive plan to include Harlan County Dam and Reservoir on Republican River, NE and authorized additional $7 million.	H. Doc. 842, 76th Cong. PL 77-228
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized additional $200 million.	H. Doc. 475, and S. Docs. 191 and 247, 78th Cong. PL 78-534
	July 24, 1946	Authorized additional $150 million for prosecution of general comprehensive plan for Missouri River Basin.	PL 79-526
	May 17, 1950	Authorized additional $250 million for prosecution of general comprehensive plan for Missouri River Basin.	PL 81-516
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized additional $217,710,000.	H. Docs. 549 and 642, 81st Cong. PL 83-780
	Sep 3, 1954	Authorized $5,384,014 to compensate Sioux Indians for reservation lands required for Oahe, South Dakota project.	PL 83-776
	May 2, 1956	Modified general comprehensive plan for Missouri River Basin by deletion of construction of Red Willow Dam and Reservoir, NE, and addition of construction of Wilson Dam and Reservoir, KS.	PL 84-505
	July 3, 1958	Expanded general comprehensive plan for Missouri River Basin and authorized additional $200 million.	H. Doc. 409, 84th Cong. PL 85-500
	July 14, 1960	Authorized additional $207 million for prosecution of general comprehensive plan for Missouri River Basin.	PL 86-645
	Dec 30, 1963	Authorized additional $80 million for prosecution of general comprehensive plan for Missouri River Basin and modified the plan to include work protection and rectification works below Garrison Dam.	PL 88-253
	June 18, 1965	Authorized additional $116 million for prosecution of general comprehensive plan for Missouri River Basin.	PL 89-042
	Aug 13, 1968	Authorized additional $38 million for prosecution of general comprehensive plan for Missouri River Basin.	PL 90-483
	June 19, 1970	Authorized additional $109 million for prosecution of general comprehensive plan for Missouri River Basin.	H. Doc. 91-748 and S. Doc. 91-895 PL 91-282
	Dec 24, 1970	Changed comprehensive plan name to Pick-Sloan Missouri Basin Program.	S. Doc. 91-1100, 91st Cong. PL 91-576
	Dec 31, 1970	Oahe Dam and Reservoir, ND.	H. Doc. 91-23 and PL 91-611
	Dec 23, 1971	Authorized additional $101 million for prosecution of Pick-Sloan Missouri Basin Program.	PL 92-222
	Mar 7, 1974	Authorized additional $72 million for prosecution of Pick-Sloan Missouri Basin Program.	PL 93-251
	July 8, 1976	Authorized additional $85 million for prosecution of Pick-Sloan Missouri Basin Program.	PL 94-347
	Nov 16, 1977	Authorized additional $59 million for prosecution of Pick-Sloan Missouri Basin Program.	PL 95-189
21.		**PIPESTEM LAKE, ND**	
	Flood Control Act of 27 Oct 1965	Provide flood control for Jamestown, ND and downstream areas.	H. Doc. 266, 89th Cong. PL 89-298

TABLE 26-B (Continued) **AUTHORIZING LEGISLATION**

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
22.		**SALT CREEK AND TRIBUTARIES, NE**	
	July 3, 1958	Series of dams and channel improvements for flood control around Lincoln, NE.	H. Doc. 396, 84th Cong. PL 85-500
23.		**SOUTH PLATTE RIVER BASIN, CO**	
	May 17, 1950	Adopted plan of improvement for South Platte River Basin and authorized $26.3 million for initiation and partial accomplishment.	H. Doc. 669, 80th Cong. PL 81-516
	May 12, 1967	Authorized additional $2 million for prosecution of plan.	PL 90-17
	Aug 13, 1968	Authorized additional $12 million for prosecution of plan.	PL 90-843
	Jun 19, 1970	Authorized additional $21 million for prosecution of plan.	PL 91-282
	Dec 23, 1971	Authorized additional $37 million for prosecution of plan.	PL 92-222
	Mar 7, 1974	Authorized additional $15 million for prosecution of plan.	PL 93-251
	Jul 8, 1976	Authorized additional $22 million for prosecution of plan.	PL 94-347
	Nov 16, 1977	Authorized additional $3 million for prosecution of plan.	PL 95-189
24.		**VAN BIBBER CREEK, CO**	
	Flood Control Act of 1948	Section 205 of the Flood Control Act of 1948 as amended; flood damage reduction	
25.		**WOOD RIVER,GRAND ISLAND, NE**	Section 101k
	Water Resources Development Act Of 1996 and 1999	Five-mile long diversion channel with levees.	PL 104-303 and Section 335 PL 106-53
29.	Nov 17, 1986	**CALIFORNIA BEND, NE**	
		Section 1135 (b) of the Water Resource Development Act of 1986, as amended; environmental improvement	PL 99-662
30.		**CHEYENNE RIVER SIOUX TRIBE, LOWER BRULE SIOUX TRIBE AND STATE OF SOUTH DAKOTA AND TERRESTRIAL WILDLFE HABITAT RESTORATION**	PL 106-53
	Water Resources Development Act of 1999 and 2000	Land transfer, mitigation and cultural work within the State of South Dakota	Section 540 PL 106-541
31.		**FORT PECK FISH HATCHERY, MONTANA**	Section 325
	Water Resources Development Act	The project will establish a multispecies hatchery for threatened and endangered native fish recovery.	PL 106-541
32.		**HIDDEN LAKE/GREAT MARSH**	
	Nov 17, 1986	Section 1135 (b) of the Water Resource Development Act of 1986, as amended; environmental improvement	PL 99-662
33.		**LOWER DECATUR, NE**	
	Nov 17, 1986	Section 1135(b) of the Water Resource Development Act of 1986 as amended; environmental improvement	PL 99-662
34.	Water Resources Development Act of 1986 and 1999	**MISSOURI RIVER FISH & WILDLIFE MITIGATION, IA, NE, KS, MO** Mitigate fish and wildlife losses resulting from the construction and operation of the Missouri River Bank Stabilization and Navigation project.	Section 601(a), PL 99-662 and Section 334, PL 106-53

TABLE 26-B (Continued) AUTHORIZING LEGISLATION

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
35.		**NATHAN'S LAKE, NE**	
	Water Resources Development Act Of 1986	Mitigate fish and wildlife losses resulting from the construction and operation of the Missouri River Bank Stabilization and Navigation project.	Section 601(a), PL 99-662 and Section 334, PL 106-53
36.		**RURAL MONTANA, MT**	Section 595 PL 106-53
	Water Resources Development Act Of 1999	The authorization will establish a program for providing environmental assistance to non-federal interests in Montana.	
37.		**UPPER CENTRAL PLATTE VALLEY, COLFAX REACH**	PL 99-662
	Nov 17, 1986	Section 1135 (b) of the Water Resource Development Act of 1986, as amended; environmental improvement	
38.		**WEHRSPANN LAKE AQUATIC, NE**	
	Nov 17, 1986	Section 1135(b) of the Water Resource Development Act of 1986 as amended; environmental improvement	PL 99-662
39.		**BIG BEND DAM - LAKE SHARPE, SD**	
	Dec. 22, 1944	Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Doc. 247, 78th Cong. PL 78-534
40.		**FORT PECK LAKE, MT**	
	June 16, 1933 Aug 30, 1935	Construction of earth dam, as recommended by Chief of Engineers Sep 30, 1933, was approved by Executive Order by the President and included in Public Works Administration program, Oct 14, 1933 as authorized by the National Industrial Recovery Act of 1933 and adopted by the River and Harbor Act of 1935 (PL 74-409).	H. Doc. 238, 73rd Cong. PL 74-409
	May 18, 1938	Completion, maintenance, and operation of a hydroelectric power plant, subject to certain provisions in act respecting transmission and sale of electric energy. Also authorizes installation of additional power-generating facilities by Secretary of War when deemed necessary in judgment of Bureau of Reclamation.	PL 75-529
41.		**FORT RANDALL DAM - LAKE FRANCIS CASE, SD**	
	Dec 22, 1944	Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong. PL 78-534
42 – 43.		**GARRISON DAM - LAKE SAKAKAWEA, MISSOURI RIVER BASIN, ND**	
	Dec. 22, 1944 PWA 1968	Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Doc. 247, 78th Cong. PL 78-534
44.		**GAVINS POINT DAM - LEWIS AND CLARK LAKE, MISSOURI RIVER BASIN, NE AND SD**	
	Dec. 22, 1944	Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Doc. 247, 78th Cong. PL 78-534
45.		**OAHE DAM - LAKE OAHE, MISSOURI RIVER BASIN, SD & ND**	
	Dec. 22, 1944	Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong.

TABLE 26-B (Continued) AUTHORIZING LEGISLATION

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
46.		**MISSOURI RIVER BETWEEN FT. PECK DAM ,MT & GAVINS POINT DAM, SD & NE**	
	Water Resources Development Act of 1988	Undertake measures to alleviate bank erosion and related problems associated with releases along the Missouri River from the six main stem dams.	Section 33, PL 100-676
47.		**PIERRE, SD**	
	Water Resources Development Act of 1999	Mitigation for flooding caused by the Oahe Dam Project to the cities of Pierre and Ft. Pierre, SD.	PL 106-53
48.		**MISSOURI RIVER MASTER WATER CONTROL MANUAL REVIEW AND UPDATE**	
	Dec 22, 1944	Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong. PL 78-534

TABLE 26-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Cost Full Report See Annual Report For	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Operation and Maintenance
Missouri River, Sioux City, IA to Fort Benton, MT	Complete	1948	3,123,141	644,863
Small Navigation Project at Sioux City, IA	Complete	1970	43,582	88,716

TABLE 26-E **OTHER AUTHORIZED FLOOD CONTROL PROJECTS**

Project	Status	For Last Cost Full Report See Annual Report For	Cost to September 30, 2003 Construction	Operation and Maintenance
Belle Fourche, Cheyenne River, SD **1/**	Complete	1940	37,410	
Big Sioux River at Sioux City, IA **3/**	Complete	1982	7,479,899	-
Blackbird Creek Near Macy, NE **2/**	Complete	1970	262,479	-
Buffalo Creek, Meadow Grove, NE **2/**	Complete	1974	293,016	-
Buffalo Creek, Scranton, ND **2/**	Complete	1960	102,980	-
Cedar Canyon Dam, Rapid City, SD	Complete	1960	120,482	-
City of Aurora, Westerly Creek, CO	Complete	1955	150,000	-
Clarkson, NE, Maple Creek	Complete	1967	191,282	-
Council Bluffs, IA (Act of 1936)	Complete	1939	-	-
Council Bluffs, IA (Act of 1944)	Complete	1954	2,557,680	-
Deadman's Gulch, Sturgis, SD **2/**	Complete	1981	3,000,000	-
Dry Creek, Hawarden, IA	Complete	1964	400,000	-
East Nishnabotna River at Red Oak, IA **2/**	Complete	1986	2,154,016	-
Floyd River, Sioux City, IA	Complete	1970	11,556,667	-
Forsyth, MT	Complete	1950	255,177	-
Frazer-Wolf Point, MT	Complete	1982	435,000	-
Gering Valley, NE	Complete	1971	5,989,663	-
Glasgow, MT	Complete	1939	16,832	-
Great Falls, MT	Complete	1991	11,905,000	-
Greybull, WY	Complete	1960	248,507	-
Havre, MT	Complete	1958	1,825,881	-
Herreid, Spring Creek, SD	Complete	1954	50,216	-
Hooper, NE **2/**	Complete	1968	326,667	-
Ida Grove, IA **2/**	Complete	1972	522,344	-
Indian Creek at Emerson, IA **2/**	Complete	1986	333,000	-
Jamestown Reservoir, ND	Complete	1950	-	-
Linton, ND **2/**	Inactive	1973	-	-
Little Papillion Creek, NE	Complete	1976	3,643,111	-
Little Sioux River, IA	Complete	1992	20,630,000	-
Loup River, Columbus, NE **2/**	Complete	1973	1,000,000	-
Lower Heart River, ND	Complete	1964	1,961,173	-
Lower Heart River, Mandan, ND **2/**	Complete	1991	1,153,430	-
Madison, NE, Union and Taylor Creeks **2/**	Complete	1967	234,839	-
Mandan, Heart River, ND	Complete	1960	676,916	-
Marmarth, ND	Complete	1960	169,498	-
McCook Lake, SD	Complete	1958	147,627	-
Miles City, MT	Inactive	1956	-	-
Missouri River, Aten, NE	Complete	1951	578,791	-

1/ Completed as a Public Works Administration project.
2/ Authorized by Chief of Engineers.
3/ **Design Deficiency Correction initiated in FY00**.

TABLE 26-E (Continued) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to September 30, 2003 Construction	Cost to September 30, 2003 Operation and Maintenance
Missouri River Levee System, IA, NE, KS and MO	Complete	1993	37,964,177	-
Missouri River, Niobrara, NE	Complete	1945	99,370	-
Mott, ND	Deferred	-	-	-
Mud Creek, Broken Bow, NE 2/	Complete	1976	1,000,000	-
Nishnabotna River at Hamburg, IA	Complete	1948	236,000	-
Norfolk, NE	Complete	1971	3,400,504	-
Omaha, NE	Complete	1954	5,903,640	-
Pierce, NE	Complete	1967	296,597	-
Platte River Near Schuyler, NE 2/	Complete	1948	74,940	-
Platte River and Lost Creek, Schuyler, NE	Complete	1971	257,398	-
Platte River and Tributaries, NE	Inactive	-	1,538,269	-
Rapid Creek, Rapid City, SD	Complete	1980	1,004,000	-
Saco, MT	Complete	1958	67,793	-
Sacred Heart Hospital, Yankton, SD	Complete	1978	184,380	-
Sheridan, WY 3/	Complete	1976	2,618,809	-
Shields River, Near Clyde Park, MT 2/	Complete	1951	25,747	-
Sioux Falls, SD	Complete	1966	5,288,707	-
Thurman to Hamburg, IA	Complete	2001	1,438,350	
Vaughn, MT, Sun River 2/	Complete	1971	457,582	-
Waterloo, NE	Complete	1970	237,883	-
West Point, NE	Complete	1966	149,596	-
Yellowstone River, W. Glendive, MT	Complete	1960	230,294	-

2/ Authorized by Chief of Engineers.
3/ Includes inactive segment.

TABLE 26-F OTHER MULTIPLE PURPOSE PROJECTS INCLUDING POWER

Project	Status	For Last Full Report See Annual Report For	Cost to September 30, 2003 Construction	Operation and Maintenance
Gavins Point Dam - Lewis and Clark Lake, Relocation of Niobrara, NE	Complete	1980	13,516,459	-
Williston, ND Water Intake	Complete	1981	988,583	-

TABLE 26-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Deauthorization Document	Federal Funds Expended	Contributed Funds Expended
Billings, MT (Western Unit)	1976	Sec. 201, FC Act 1950 23 Mar 81	75,000	-
Boulder, CO	1976	FC Act 1950 WRDA of 1986 17 Oct 86	142,666	-
Buffalo, Johnson County Diversion Channel, WY	1961	FC Act 1950 WRDA of 1986 17 Oct 86	-	-
Castlewood Lake, Douglas County, CO	1943	PL 77-228 WRDA of 1986 17 Oct 86	-	-
Davids Creek Lake, IA	1972	Sec. 203, PL 90-483 WRDA of 1986 17 Oct 86	-	-
Dayton, WY	1956	Sec. 12, PL 93-251 WRDA of 1974 5 Aug 77	-	-
Elm Creek at Decatur, NE	N/A	Sec. 1001(b) WRDA of 1986	70,000	-
Giles Creek, Elkhorn, NE	1952	Sec. 12, PL 93-251 WRDA of 1974 6 Nov 77	-	-
Indian Creek Lake, IA	1969	Sec. 12, PL 93-251 WRDA of 1974 4 Jan 74	135,000	-
Lake Herman (Dredging), SD	N/A	Sec. 1001(a), PL 89-298 WRDA of 1986 17 Oct 86	-	-
Little Nemaha River, Nemaha County, NE	1973	Sec. 204, PL 89-298 WRDA of 1986 17 Oct 86	-	-
Milk River, Havre, MT	N/A	Sec. 1001(a), PL 89-298 WRDA of 1986 17 Oct 86	-	-
Miles City, MT	1982	FC Act of 1950 Section 1001(b) WRDA 1986	282,200	-
Morrison, Bear Creek, CO	1950	Sec. 12, PL 93-251 WRDA of 1974 5 Aug 77	30,000	-
Mott, ND	N/A	Sec. 1001(b) WRDA of 1986	-	-

The following investigations for flood control called for by Flood Control Acts and committee resolutions were deauthorized by WRDA of 1986, 17 Oct 86; Aowa & South Creek, NE; Bow Creek, NE; Cannonball River, ND; James River, ND & SD;,Judith River Basin, MT; Niobrara River Basin, NE, SD & WY; Omaha Creek, NE; South Dakota Lakes, SD; Weeping Water Creek, NE; Windpower at Ft. Peck Lake, MT; Yellowstone River below Billings, MT; South Platte River, Denver-Ft. Lupton-Ft. Morgan, CO; Lower Big Sioux River IA & SD; Eagle Bay Highway Bridge, Missouri River Basin, ND; Sheridan, WY (Stage III); Missouri River Levee System Units: R531, R540, R553, R555, R577, R589, R603, R610, R623, R644, R645, R652, R66l, R669, R676, R682, R686, R703, R717, R719, R725, R728, R742, R750.

TABLE 26-G (continued) DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Deauthorization Document	Federal Funds Expended	Contributed Funds Expended
Oahe Dam - Lake Oahe (Wildlife Restoration), ND	N/A	FC Act of 1970 Section 1001(b) WRDA 1986	0	-
Redwater River and Hay Creek, Bell Fourche, SD	1966	Sec. 12, PL 93-251 WRDA of 1974 4 Jan 74	1,000	-
Shell Creek, NE	1962	Sec. 12, PL 93-251 WRDA of 1974 3 Oct 78	71,000	-
Upper Missouri River, SD Streambank Erosion Control Project	N/A	Sec. 1001(a), PL 89-298 WRDA of 1986 17 Oct 86	-	-
Vermillion River and Tribs, SD	1968	Sec. 12 PL 93-251 WRDA of 1974 4 Jan 74	208,000	-

The following investigations for flood control called for by Flood Control Acts and committee resolutions were deauthorized by WRDA of 1986, 17 Oct 86; Aowa & South Creek, NE; Bow Creek, NE; Cannonball River, ND; James River, ND & SD;,Judith River Basin, MT; Niobrara River Basin, NE, SD & WY; Omaha Creek, NE; South Dakota Lakes, SD; Weeping Water Creek, NE; Windpower at Ft. Peck Lake, MT; Yellowstone River below Billings, MT; South Platte River, Denver-Ft. Lupton-Ft. Morgan, CO; Lower Big Sioux River IA & SD; Eagle Bay Highway Bridge, Missouri River Basin, ND; Sheridan, WY (Stage III); Missouri River Levee System Units: R531, R540, R553, R555, R577, R589, R603, R610, R623, R644, R645, R652, R66l, R669, R676, R682, R686, R703, R717, R719, R725, R728, R742, R750.

MISSOURI RIVER LEVEE SYSTEM, SIOUX CITY, IA TO RULO, NE

TABLE 26-H

	Unit	Miles of Levee	Status
L627-624	Mosquito Creek Levee	14.2	Complete 1950
L601	Watkins-Waubonsie Ditch Levees	15.0	Complete 1966
L594	Pleasant Valley Levee	11.4	Complete 1964
R580	Nebraska City Levee	0.2	Complete 1950
L575	Thurman-Hamburg Levee	45.8	Complete 1950
R573	Otto County Drainage District No. 2	5.9	Complete 1950
R562	Peru Dike	7.6	Complete 1950
L561-550	Atchison County Levee District No. 1	41.3	Complete 1952
R548	Brownville-Nemaha Levee	19.5	Complete 1952
L536	Mill Creek Levee	13.6	Complete 1952
R520	Richardson County Drainage District No. 8	6.3	Complete 1960
R613	Papillion Creek-Platte River Levee	14.0	Complete 1971
R616	Bellevue-Papillion Creek Levees	4.5	Complete 1987
L611-614	Mosquito-Keg Creek Levees	22.0	Complete 1988
L627, L624, L561-550	Remedial Studies on Completed Units		Studies Complete
Comprehensive	Restudy of Levee System		Studies Complete

PICK-SLOAN MISSOURI RIVER BASIN PROGRAM

TABLE 26-I **(See Section 20 of Text)**

Project	Estimated Federal Cost	Estimated Non-Federal Cost
Fort Peck Lake, MT 1/, 2/	158,428,000	1,103,000
Garrison Dam, Lake Sakakawea, ND 1/, 2/ 3/	337,295,431	1,516,000
Missouri River Levee System, IA, NE, KS and MO (Sioux City, IA to Rulo, NE) 1/	37,931,000	4,618,000
Oahe Dam-Lake Oahe, SD and ND 1/, 2/	346,521,000	2,320,000
Big Bend Dam-Lake Sharpe, SD 1/, 2/	107,498,000	302,000
Fort Randall Dam, Lake Francis Case, SD 1/, 2/	199,066,000	1,609,000
Gavins Point Dam, Lewis & Clark Lake, SD & NE 1/, 2/	49,617,000	137,000
Gavins Point Dam, Lewis & Clark Lake, SD & NE-Relocation of Niobrara, NE 2/	13,516,000	-
Omaha, NE 2/	5,904,000	362,000
Council Bluffs, IA 2/	2,558,000	146,000
Missouri River, Garrison Dam to Lake Oahe, ND 2/	9,413,000	270,000
Cherry Creek Lake, C0 1/, 2/	15,220,000	285,000

1/ Details presented on individual report. **2/ Completed.** **3/ Active portion of project.**

INSPECTION OF COMPLETED LOCAL PROTECTION PROJECTS

TABLE 26-J **(See Section 26 of Text)**

Location	Month Inspected
Montana	
* Clyde Park, Shields River	Sep 99
* Yellowstone River, Water Plant, Livingston	Sep 02
* Milk River, Malta (Sewer Line)	Oct 02
* Yellowstone River, Livingston (N.E. Livingston Bridge)	Sep 02
* Milk River, Chinook (Finley Bridge)	Oct 02
* Battle Creek, Chinook (Uhruh Bridge)	Sep 02
* East Gallatin, Near Bozeman (Intst Bridge)	Sep 02
* Yellowstone River, Near Livingston (Hwy 89 - 7 Miles East of Livingston)	Sep 02
* Shields River, Near Livingston (Hwy 89)	Sep 02
* Teton River, Near Choteau (Hwy 89)	Oct 02
* Madison River, Quake Lake	Sep 03
* Milk River, Malta	Oct 00
* Missouri River, Bank Stabilization Project, Frazer	Sep 94
* Dearborn River - Hwy 287, Wolf Creek	Oct 02
* Muddy Creek - Int Hwy 15 - Frontage Road, Vaughn	Oct 02
* Badger Creek - Hwy 89, Browning	Sep 02
* Yellowstone River, Glendive	Sep 03
* Coulsen Park, Yellowstone	Sep 02
* Missouri River, Culbertson	Sep 02
* Wolf Point, Missouri River	Oct 02
- Saco, MT, Beaver Creek	Oct 01
- Glasgow, MT, Milk River	Nov 02
- Havre, MT, Milk River	Oct 02
- Forsythe, MT, Yellowstone River	Sep 03
- West Glendive, MT, Yellowstone River	Sep 02
- Vaughn, MT, Sun River	Oct 02
- Great Falls, MT, Sun River	Oct 02
- Malta, MT, Milk River	Oct 02
- Havre, MT, Bull Hook Dam	Oct 02
- Havre, MT, Scott Coulee Dam	Oct 02
**Cotton Wood Levee, Glendive, Montana	Dec 00
Wyoming	
* Baldwin Creek, Lander (Sewage Lagoons)	Sep 03
* Shoshone River, Bank Protection, Lovell	Aug 92
* Shoshone River, Byron	Sep 02
* Powder River, Arvada	Oct 02
* Medicine Bow River, Elk Mountain	Jan 97
* Tongue River, Ranchester, WY	Oct 02
- Greybull, WY, Big Horn River	Sep 03
- Sheridan, WY, Big and Little Goose Creeks	Sep 03
North Dakota	
* Cannonball River	Oct 97
- Mandan, ND, Lower Heart River	Sep 02
- Marmarth, ND, Little Missouri River	Sep 02
- Scranton, ND, Buffalo Creek	May 03

***** **Denotes Section 14 Projects**
- **Denotes Section 205 Projects under PL 84-99**
****** **Denotes PL-84-99 Non-Federal Projects**

TABLE 26-J (Continued) **(See Section 26 of Text)**

	Location	Month Inspected
	Colorado	
*	South Platte River, Kersey	Sep 99
*	South Platte River, Merino	Sep 99
*	South Platte River, Iliff	Aug 99
*	South Platte River, Platteville	Sep 99
*	Big Thompson River, Johnstown	Sep 99
*	Cache La Poudre River, Ft. Collins (Water Treatment Plant)	Sep 96
*	South Platte River, Fort Lupton Hwy 85	Aug 99
*	South Platte River, Logan County (Bridges 175A & 173)	Sep 99
*	Downstream Chatfield, Denver	Jun 01
*	South Platte, Ft. Lupton WWTP	Aug 99
*	S. Platte River, Weldona	Sep 96
*	Cache La Poudre, Boxelder Sanitation	Jun 00
*	S. Platte, Weld Cty Bridges (Hwy 28, 61 & 87)	Sep 96
-	Aurora, CO, Westerly Creek	Jun 03
-	Aurora, CO, Kelley Road Dam	Jun 03
-	Littleton Chatfield Downstream Channel, Denver, CO	Jun 03
**	Town of Wiggins, CO	May 01
**	Town of Erie, CO	May 01
**	Fort Collins North, CO	May 01
**	Fort Collins Wastewater Treatment Plant, CO	May 01
	South Dakota	
*	Missouri River, Bank Protection, Greenwood	Sep 02
*	Bad River, Bank Protection, Fort Pierre	Jun 00
*	Big Sioux River, Schofield Bridge, Near Flandreau	Jun 00
*	Rapid Creek, Rapid City	Sep 99
*	Missouri River, Sacred Heart Hospital, Yankton	Aug 97
*	Vermillion River, Vermillion	Jun 01
*	Big Sioux River, Harrisburgh	Jun 00
*	Big Sioux River, Jefferson	Jun 00
*	Marne Creek, Yankton	Jun 01
*	White River, Winner	Sep 02
*	James River, Yankton	Jul 01
*	Missouri River, White Swan & Sunshine Bottoms	Aug 98
*	Big Sioux River, Plymouth County	Jun 99
*	Vermillion River, Vermillion WWTP	Jun 01
-	Elk Point, SD, Big Sioux River, Union County	Jun 03
-	Big Sioux River, North Sioux City, SD	Jun 03
-	Sioux Falls, SD, Big Sioux River	Jun 03
-	Belle Fourche, SD, Belle Fourche River	Sep 03
-	Rapid City, SD, Rapid Creek	Sep 03
-	Rapid City, SD, Cedar Canyon	Sep 03
-	Hot Springs, SD, Fall River Channel	Sep 03
-	Herreid, SD, Spring Creek	Sep 03
-	Sturgis, SD, Deadman Gulch	Sep 03
**	City of Waubay, SD	Dec 99
**	Centerville, SD	Feb 97

* **Denotes Section 14 Projects**
\- **Denotes Section 205 Projects under PL 84-99**
** **Denotes PL-84-99 Non-Federal Projects**

INSPECTION OF COMPLETED LOCAL PROTECTION PROJECTS

TABLE 26-J (Continued) **(See Section 26 of Text)**

Location	Month Inspected
Nebraska	
* Blackbird Creek, Burt County	Apr 01
* Platte River, Brady	Apr 03
* Elm Creek, Decatur	Apr 01
* Nebraska City South Table Creek	Jul 02
* Wigle Creek, Homer	Nov 01
* South Elkhorn River, near Ewing, NE	Apr 03
* Elk Creek, Jackson	Nov 01
* Elk Creek, Willis	Nov 01
* Middle Pebble Creek, Snyder	Jun 01
* Elm Creek, Burt County	Apr 01
* Platte River, Camp Ashland	Nov 01
* West Branch Papillion Creek, Omaha, NE	Nov 01
* Logan Creek, Near Bancroft	Nov 01
* Platte River, Near North Bend	Oct 01
* Elkhorn River, Near Beemer	May 01
* East Bow Creek, Wynot	Jun 01
* Cedar River, Spalding	Dec 01
* Bassett, Niobrara River	Aug 01
* Scottsbluff, Nine Mile Drain	Sep 96
* O'Neill, Redbird Creek	Sep 02
* Johnstown, Plum Creek	Sep 02
* St. Edwards, Beaver Creek	Dec 01
* Martinsburg, South Creek	Nov 01
* Ginger Cove, Platte River	Apr 01
* Elkhorn River, Omaha	Dec 92
* Little Papio Creek, Omaha	Oct 98
* Muddy Creek, Syracuse	Oct 94
* Valley, Platte River	Oct 94
* Hanson Chris Lake, Platte River	Feb 02
- Sioux City, NE, Perry Creek	Aug 03
- Macy, NE, Blackbird Creek	Jul 03
- Lincoln,NE, Salt Creek & Tributaries	May 03
- Meadow Grove, NE, Buffalo Creek	May 03
- Columbus, NE, Loup River	Aug 03
- Broken Bow, NE, Mud Creek	Aug 03
- Lost Creek, Columbus, NE	Aug 03
- Omaha, NE Missouri River	Aug 03
- Waterloo, NE, Elkhorn River	Apr 03
- West Point, NE, Elkhorn River	May 03
- Pierce, NE, Elkhorn River	Jul 03
- Clarkson, NE, Middle Fork, Maple Creek	Jun 03
- Hooper, NE, Elkhorn River	May 03
- Norfolk, NE, North Fork, Elkhorn River	May 03
- Madison, NE, Union & Taylor Creeks	May 03
- Schuyler, NE, Lost Creek & Platte River	Sep 03

* **Denotes Section 14 Projects**
\- **Denotes Section 205 Projects under PL 84-99**
** **Denotes PL-84-99 Non-Federal Projects**

INSPECTION OF COMPLETED LOCAL PROTECTION PROJECTS

TABLE 26-J (Continued) **(See Section 26 of Text)**

Location	Month Inspected
Nebraska (Continued)	
- Pender, NE, Logan Creek	Jul 03
- Little Papillion Creek, Omaha, NE	Oct 98
- Scribner, NE, Elkhorn River	Jun 03
- Howells, NE, Maple Creek	Jun 03
- Big Papio Creek, Omaha, NE	Aug 02
- Gering, NE, Gering Drain	May 02
- Sidney, NE, Lodgepole Creek	May 02
Missouri River Levees	
- L624 & L627, Mosquito Creek & Sieck Levees, Council Bluffs, IA	Jul 01
- L601, Watkins Levee District	Aug 02
- L601, Miller-Sturgeon Levee District	Jan 03
- L601, Missouri River Levee District #1	Aug 02
- L594, Waubansie Drainage District	Aug 02
- L594, Pleasant Valley Levee District	Aug 02
- L575, Benton-Washington Levee District	Apr 03
- L575, Northwest Atchison Levee District	Dec 99
- L575, McKissock Island Levee District	Aug 03
- L575, Buchannan Levee District	Aug 03
- L575, Missouri River Levee	Aug 03
- L561, L550, L536, Atchison County Levee District	Jul 03
- L611-614, M & P Missouri River Levee District	Jul 03
- R613, Papio Natural Resources District	Sep 02
- R548, Little Nemaha Levee District, Brownville, NE	Aug 02
- R548, Little Nemaha Levee District #3	Sep 02
- R520, Richardson Co. Levee Dist. #8	Sep 02
- R573, Otoe County Drainage Dist. #2	Sep 99
- R616, Sarpy County Papio Natural Resources District	Sep 02
- R562, Peru Levee District	Sep 02
**Union Dike, Valley, NE	Sep 99
**No Name Dike, Valley, NE	Sep 99
**Big Papio Cr. West Branch 96th – 44th, Papillion, NE	Oct 99
**YMCA Camp Kataki, South Bend, NE	Nov 98
**Omaha Fish & Wildlife Club, NE	Apr 00
**Clear Creek, Ashland, NE	Oct 00
**Lake Waconda SID #1, Union, NE	Sep 00
**Hawaiian Village SID #97, Papillion, NE	Sep 00
**Ames Diking District, Ames, NE	Jan 99
**SID #101 Hansen Lake	Jun 00
**Fremont County Bd of Sup Peterson	Jul 99
**Big Papio L st to Capehart Rd, Omaha, NE	Feb 00
**Whitehead, Riverton, IA	Aug 99
**Cottrelle Diking District	Jul 99
**Corning Levee Dist #2 Mill Creek D.D.	May 00

* **Denotes Section 14 Projects**
\- **Denotes Section 205 Projects under PL 84-99**
** **Denotes PL-84-99 Non-Federal Projects**

INSPECTION OF COMPLETED LOCAL PROTECTION PROJECTS

TABLE 26-J (Continued) **(See Section 26 of Text)**

Location	Month Inspected
Iowa	
* West Nishnabotna River, Mills County Bridge, Near Malvern	Apr 02
* East Nisbnabotna River, Page County Bridge, Near Essex	Jul 99
* Mucky Creek, Mapleton, IA	Oct 01
* Little Sioux River, Anthon	Oct 01
* Keg Creek, Minden	Mar 02
* Soldier River, Near Ute	Oct 01
* Hastings Bridge, W. Nishnabotna, Mills Cty	Apr 02
* Southerland, Watermann Creek	Jul 01
* Vail, Boyer River	Mar 99
* Akron #1, Big Sioux River	Jul 01
* Akron #2, Big Sioux River	Jul 01
- Sioux City, IA, Big Sioux City	Jun 03
- Hamburg, IA, Ditch 6	Jun 02
- Nisnabotna River, Hamburg, IA	Aug 03
- Council Bluffs, IA, Missouri River	Jul 00
- Ida Grove, IA, Maple River-Odebolt Creek	Jul 03
- Sioux City, IA, Floyd River	Jul 03
- Hawarden, IA, Dry Creek	Jul 03
- Hamburg, IA L575, Nishnabotna River	Jul 03
- Little Sioux, IA, Intercounty D.D., Little Sioux River	Sep 03
- Little Sioux, IA, Nagel D.D., Little Sioux River	Sep 03
- Little Sioux, IA, Bennett-McDonald-Smithland D.D., Little Sioux River	Sep 03
- Red Oak, IA, East Nishnabotna River	Jun 03
- Emerson, IA, Indian Creek, Mills County	Jun 03
- Little Sioux, IA, Monona-Harrison Ditch Control, Monona County	Sep 01
**Winslow Seg #1 (Up Stream) Hamburg, IA	Aug 99
**Fremont County Bd of Sup Bowman, Zach, Roth	Jul 99

***** **Denotes Section 14 Projects**
- **Denotes Section 205 Projects under PL 84-99**
****** **Denotes PL-84-99 Non-Federal Projects**

TABLE 26-K

ACTIVE GENERAL INVESTIGATIONS
(See Section 52 of Text)

Item	Federal Cost Fiscal Year 03	Totals By Subtotal and Category
SURVEYS (Category 100)		
Flood Damage Prevention Studies (120)		
Reconnaissance Study (121)		
Cache La Poudre River	22,826	
James River, ND & SD	16,911	
Niobrara & Missouri Rivers	12,757	
Feasibility Study (122)		
Antelope Creek, Lincoln, NE	74	
James River, ND & SD	319,481	
Lower Platte River and Tribs., NE	79,767	
Subtotal		**451,816**
Special Studies (140)		
Ecosystem Restoration RECON (143)		
Adams County	16,039	
Arapahoe County	19,030	
Watershed/Ecosystem Feasibility (144)		
Lower Platte Watershed, NE	119,460	
Zuni & Sun Valley Reaches, South Platte	(10,954)	
Subtotal		**143,575**
Comprehensive Studies (150)		
Feasibility Study (152)		
Yellowstone River Corridor, MT	135,778	**135,778**
Review of Authorized Projects (160)		
Review of Completed Project: Feasibility Study (164)		
Chatfield, Cherry Creek & Bear Creek	176,046	**176,046**
Miscellaneous Activities (170)		
Special Investigations (171)	113,185	
FERC Licensing Activities (172)	1,963	
Interagency Water Resources Development(173)	16,638	
North American Waterfowl Management Plan(176)	3,281	
Subtotal		**135,067**
Coordination Studies with Other Agencies (180)		
Cooperation With Other Water Resources Agencies (181)	10,042	
Planning Assistance to States (186)	202,196	
Subtotal		**212,238**
TOTAL (Category 100)		**1,254,520**
COLLECTION AND STUDY OF BASIC DATA (Category 200)		
Flood Plain Management Services (250)		
Flood Plain Management, Omaha, NE	54,940	
National Flood Proofing Committee (NFPC)	65,075	
Quick Responses	4,878	
Flood Proofing Workshop	5,979	
SS – Aowa Creek, NE	34,680	
SS – Douglas County, WY	5,197	
SS – Hulett, WY	5,559	
SS – Yellowstone River, Glendive, MT	138	
Technical Services, General	37,174	
Hydrologic Studies (260)		
General Hydrologic Studies (262)	12,043	
TOTAL (Category 200)		**225,663**

TABLE 26-K (Continued)

ACTIVE GENERAL INVESTIGATIONS
(See Section 52 of Text)

Item	Federal Cost Fiscal Year 03	Totals By Subtotal and Categories
PRECONSTRUCTION ENGINEERING AND DESIGN - PROJECTS NOT FULLY AUTHORIZED (Category 400)		
Zuni & Sun Valley Reaches, South Platte, CO (410)	168,069	
Antelope Creek, Lincoln, NE (451)	676	
Watertown & Vicinity, SD (451)	219,392	
Lower Yellowstone River Diversion Dam (451)	505	
Sand Creek Watershed, Wahoo, NE (451)	109,150	
TOTAL (Category 400)		**497,792**
PRECONSTRUCTION ENGINEERING AND DESIGN - PROJECTS FULLY AUTHORIZED (Category 600)		
Western Sarpy & Clear Creek, NE (651)	85,333	**85,333**
GRAND TOTAL GENERAL INVESTIGATIONS		**2,063,308**

FLOOD CONTROL ACTIVITIES UNDER SPECIAL AUTHORIZATION

TABLE 26-L **(See Section 28 of Text)**

Project Name	Stage	Fiscal Year 03 Cost
Flood Control and Coastal Emergencies		
Disaster Preparedness (100)	-	497,044
Emergency Operations (200)	-	25,215
Rehabilitation & Inspection Program (300)	-	151,446
Emergency Water Supplies & Drought Assistance (400)	-	0
Advance Measures (500)	-	0
Hazard Mitigation (600)	-	1,880
Support for Others		226,505
Total (FCCE)		**902,090**
Section 205:		
Coordination Account	-	35,333
Logan Creek, Pender, NE	C	16,409
Milk River, Malta, MT	C	597
Nishnabotna River, Hamburg, IA	C	730
Van Bibber Creek, Arvada, CO	P	79,524
Denison, IA	P	148,928
Verdigre, NE	F	534
Burt & Washington Counties, NE	F	260
Livingston, MT	F	28,149
Cold Brook Creek, Hot Springs, SD	F	9,596
Sidney, NE	C	37
Ponca Creek, Lynch, NE	F	2,483
Heart River, Mandan, ND	F	2,297
Mosquito Creek, Council Bluffs, IA	F	8,513
Knife River, Beulah, ND	F	1,888
Yellowstone River, Glendive, MT	F	275
Crow Creek, Cheynne, WY	F	5,957
Platte River, Fremont, NE	F	37,152
Platte River, Schuyler, NE	F	39,024
Red Oak Creek, IA	F	69,415
Platte River, North Fremont, NE	F	43,402
Sterling, CO	F	2,984
Pebble Creek, Scribner, NE	C	80
Maple Creek, Howells, NE	C	433
Randolph, NE	F	63,483
Kaycee, WY	F	17,441
Dry Creek, Cheyenne, WY	F	31,616
Box Elder Creek, Box Elder, SD	F	38,069
Tongue & Yellowstone Rivers, Miles City	F	32,667
Total (Section 205's)		**717,276**

FLOOD CONTROL ACTIVITIES UNDER SPECIAL AUTHORIZATION

TABLE 26-L **(See Section 28 of Text)**

Project Name	Stage	Fiscal Year 03 Cost
Section 14:		
Coordination Account	-	12,424
County Road M16, IA	C	(4,010)
North Platte River, Casper, WY	PDA	5,718
Beal Slough, Lincoln, NE	PDA	8,248
James River, Redfield, SD	PDA	16,727
Howard County, NE	PDA	2,500
Salt Creek, Lincoln, NE	PDA	6,826
Total (Section 14's)		**48,433**
Total Flood Control Activities		**$ 1,667,798**

L = Litigation **R** = Recon
P = Plans & Specs **C** = Construction
F = Feasibility **-** = Does Not Apply
PDA = Planning & Design Analysis (Section 14 only)

TABLE 26-M **ENVIRONMENTAL**

Modification of projects for the purpose of improving the quality of the environment in the public interest.

(Includes Section 1135, Public Law 99-662, as amended and Section 206, Public Law 104-303, as amended.)

Study/Project and Location	Fiscal Year 03 Federal Funds Expended	Fiscal Year 03 Contributed Funds Expended
California Bend, NE	1,954,134	186,165
Candlewood Lake, NE	4,660	------
Chatfield Downstream, South Platte, CO	51,900	------
Cherry Creek Reservoir, CO	138	------
Cheyenne River Sioux Tribe, Lower Brule Sioux Tribe and State of South Dakota Terrestrial Wildlife Habitat Restoration	6,984,819	------
Coordination Account Funds (1135)	46,208	------
Coordination Account Funds (206)	29,590	------
Council Bend, IA	190,481	------
Dry Creek, WY	3,027	------
Ericson Lake, Cedar River, NE	99,717	------
Glenn Cunningham Lake, NE	131,437	------
Fort Peck Fish Hatchery, MT	3,338,512	------
Glover's Point Bend, NE	------	------
Goose Creek, CO	9,124	------
Heron Haven, NE	140,976	------
Hidden Lake Restoration, NE	6,100	17,148
Kingfisher Point, CO	343,051	------
Livingston, MT	------	------
Lower Boulder Creek, CO	103,350	------
Lower Decatur Bend, NE	78,423	------
Marcy Gulch, CO	353	------
Missouri River Fish & Wildlife Mitigation, IA, NE, KS & ND	5,813,772	------
Missouri River Restoration, SD	38,562	------
Missouri River Restoration, ND	4,212	------
Missouri River Bank Stab/Nav.	10,196	7
Nathan's Lake, NE	32,244	------
Piney Creek, CO	7,411	------
Plattesmouth Bend Chute, NE	218,173	------
Preliminary Restoration Plan (1135)	3,307	------
Preliminary Restoration Plan (206)	------	------
Sand Creek, NE	407,059	------
South Platte River (Hayman Fire), CO	8,222	------
Upper Central Platte Valley (Colfax Reach), CO	188,037	------
Wehrspann, Lake Aquatic, NE	83,908	45,717

KANSAS CITY, MO, DISTRICT

The district comprises a portion of southwestern Iowa; northwestern, central and western Missouri; northern Kansas; southern Nebraska; and a portion of northeastern Colorado embraced in drainage basin of the Missouri River and tributaries from Rulo, Nebraska, to the mouth. Report on navigation project for section of Missouri River from Sioux City, Iowa, to Rulo, Nebraska, is in report of Omaha District.

IMPROVEMENTS

Navigation

1. MISSOURI RIVER, SIOUX CITY, IA,TO MOUTH (RULO, NE, TO MOUTH)

Location. Jefferson, Madison, and Gallatin Rivers conjoin at Three Forks, Montana, to form the Missouri River, which flows southeasterly 2,315 miles (1960 mileage) across or along seven states to the Mississippi River, 17 miles above St. Louis. For description see page 1149, Annual Report for 1932. The river is commercially navigable from Sioux City, Iowa, to the mouth, a distance of 732 miles. The portion of project in Kansas City District extends from Rulo, Nebraska, to the mouth, a distance of 498 miles.

Previous Projects. For details see page 1891 of Annual Report for 1915, and pages 1153 and 1175 of Annual Report for 1938.

Existing Project. A channel of 9-foot depth and width not less than 300 feet, obtained by revetment of banks, construction of permeable dikes to contract and stabilize the waterways, cutoffs to eliminate long bends, closing minor channels, removal of snags, and dredging as required. The improved reach within the Kansas City District extends from the mouth to Rulo, Nebraska, a distance of 498.4 miles. The Bank Stabilization and Navigation features of the project were completed in September 1980. For the reach from Rulo, Nebraska, to the mouth, the total construction cost was $237,942,190 including $8,665,594 for previous project. River access sites have been completed at 11 locations. Ordinary and extreme stage fluctuations are 16 and 38 feet, respectively.

Local cooperation. Cooperation from benefited localities may be required where any improvement may confer special benefit. The receipt of contributions from private parties are to be expended along with Government funds upon authorized work where such work would be in the interest of navigation, as authorized by 1915 Rivers and Harbors Act. Secretary of the Army approved general principle of cooperative construction on Missouri River below Kansas City on basis that 25 percent of cost of any special installation shall be paid by the United States and 75 percent by local interests. Total contributed by local interests in cooperation with the United States from 1918 to June 30, 1964, was $675,663, of which $8,647 was returned to contributors. Local interests must share in cost of recreation facilities in accordance with provisions of the Federal Water Project Recreation Act of 1965. Local interests have contributed $171,816 for cost sharing on construction of recreation in addition to constructing portions of the facility.

Terminal facilities. A listing of terminal facilities are included in Missouri River Navigation Charts and can be obtained from Kansas City District Engineer for a small fee.

Operations during fiscal year. Field hired labor accomplished emergency construction of a new dike to correct a chronic low water navigation problem. Contract and District personnel to improve the aquatic habitat of the river constructed over 80 notches. District personnel also accomplished other work items: Channel reconnaissance, stream gauging condition studies, surveys and mapping, engineering and design, surveys and layouts of construction, and supervision and administration. Project tonnage on the river for CY 2003 is estimated at 8.2 million tons, excluding waterway improvement materials. District estimates the recreation use on the Missouri River (NWK) at 1.3 million recreation days annually.

2. MISSOURI RIVER FISH AND WILDLIFE MITIGATION, IA, NE, KS, and MO

Location. This project authority extends along the Missouri River from Sioux City, Iowa, to the mouth near St. Louis, Missouri a river distance of 735 miles. Individual project site may be located along the 735 miles at locations adjacent with the river and within the historic floodplain.

Existing project. This project was authorized under WRDA86 and WRDA99. The purpose of this project is to mitigate losses of fish and wildlife habitat resulting from construction and operation of the Missouri River Bank Stabilization and Navigation Project. An estimated 522,000 acres of aquatic and terrestrial floodplain habitats have been lost in the project area. 166,750 acres has been authorized for mitigation, roughly 32% of the estimated loss. The major components of the Mitigation project are acquisition, design, development and monitoring of floodplain habitats. The mitigation can be implemented on either existing publicly owned lands or could involve acquisition of private lands from willing sellers. The estimated funded cost of the project is $1,330,000,000 (Oct 2001 price level). The project is 100% Federally funded, including O&M. If the project is funded through 2042, the estimated project cost after inflation is $3,100,000,000. Kansas City District has overall project management responsibility. Omaha District is involved in the implementation of the project in the States of Iowa and Nebraska.

Local cooperation. There is no non-Federal sponsor for the project. The U.S. Fish & Wildlife Service, EPA and the states of Iowa, Nebraska, Kansas, and Missouri are voluntarily serving on a coordinating team, which is actively involved in ongoing project activities and site-specific operation and maintenance.

Operations during fiscal year. Funding was continued for land acquisition and construction of mitigation features.

Total expenditures for FY 03 was $13,492,200 ($7,678,428 NWK + NWO $5,813,772). Land was purchased or easements obtained at Monkey Mountain, Thurnau, Tieville-Decatur, Langdon Bend, and Columbia Bottoms mitigation sites. Planning efforts were undertaken to focus on shallow water habitat creation for the endangered pallid sturgeon. Design activities were carried out at Lower Hamburg, Columbia Bottoms, Glovers Point, and Kansas Bend sites. Construction activities occurred at Overton Bottoms North, Columbia Bottoms, Tieville-Decatur, California Bend, Hamburg Bend, and Louisville Bend sites. O&M during construction and monitoring activities is being formulated with local agencies.

Flood Control

3. BLUE RIVER BASIN, KANSAS CITY, MO

Location. Along the left bank of the Blue River from U.S. Highway 71 upstream for a distance of about 1-1/4 miles in Jackson County, Missouri, to the Bannister Federal Complex levee.

Existing project. The recommended project includes construction of approximately 1-1/4 miles of levee to provide flood protection to 280 acres in the Dodson Industrial Area and surrounding area in Kansas City. Estimated Federal cost through construction of the project (2004) is $12,332,000, and estimated non-Federal cost of lands damages and relocations is $6,785,900. Funds were provided in FY 2002 for a new construction start.

Local Cooperation. The Project Cooperation Agreement (PCA) was executed in September 2001.

Operations during fiscal year. Preconstruction engineering and design continued with preparation of the Design Documentation Report and plans and specifications. A first phase of the project was awarded in September 2003. A second phase of the will be awarded in September 2004.

4. BLUE RIVER CHANNEL, KANSAS CITY, MO

Location. Along the Blue River and tributaries in Jackson County, Missouri.

Existing Project. Project consists of 12.5 miles of improved channel along the Blue River within Kansas City, Missouri. Estimated Federal cost through construction of the project (2002) is $220,000,000, and estimated non-Federal cost of lands, damages and relocations is $32,500,000.

Local Cooperation. Section 2, Flood Control Act of June 22, 1936 applies. The City of Kansas City, Missouri, passed a resolution of intent on December 9, 1975 to provide the required assurances of local cooperation when requested. The Kansas City District Engineer signed the Section 221 agreement on September 8, 1983.

Operations during fiscal year. All work on stages 1 and 2 has been completed. The Stage 3 reach of the project consists of six construction contracts. The 12th to 19th Street, the 19th to Stadium Drive, and the Stadium Drive to Brush Creek contracts are complete. The Union Pacific Railroad Bridges Alteration contract is currently advertised and will be awarded in early FY04. The Plans and Specifications for the remaining two contracts have been initiated. A General Reevaluation Report study effort has been initiated. FEMA map revision studies from the mouth to Stadium Drive are nearing completion. A Blue Parkway Bridge Study (City funded) has been completed. Phase 1 of the Greenway Master Plan Study (Planning Assistance to States program) is nearly complete.

5. BRUSH CREEK, KANSAS CITY, MO

Location. A major tributary of the Blue River in Kansas City, Missouri, and Johnson County, Kansas, draining a highly urbanized 29-square-mile area in the two states.

Existing project. The authorized project consists of improving about 7,500 feet of the channel from near Roanoke Parkway downstream to near Troost Avenue in Kansas City. At the request of the sponsor, Kansas City, Missouri, a modified project was built which provides identical flood protection, but which also accommodates park and recreation development in the authorized reach. Estimated fully funded Federal cost of the modified project (1996) is $14,464,000; and estimated non-Federal cost of lands, damages, and cash is $19,526,000.

Local cooperation. The City of Kansas City and the Corps of Engineers entered into a Local Cooperation Agreement (LCA) on the project in March 1991.

Operations during fiscal year. The dedication of the project was in June 1995. The project was turned over to the local sponsor in January 1997.

6. CLINTON LAKE, WAKARUSA RIVER, KS

Location. Damsite is on Wakarusa River about 4 miles southwest of Lawrence, in Douglas County, Kansas. The lake extends into Shawnee and Osage Counties, Kansas.

Existing project. An earthfill dam about 9,250 feet long constructed to a height of about 114 feet with an uncontrolled spillway in left abutment. Total reservoir storage capacity 397,200 acre-feet (258,300 for flood control, 28,500 for sediment reserve, and 110,400 of multipurpose storage for municipal and industrial waste supply and recreation). Cost of constructing the completed project was $57,415,433. Construction was initiated in January 1972, and the project was placed in operation in November 1977.

Local cooperation. Section 2, Flood Control Act of June 28, 1938 applies. Reimbursement in the estimated amount

of $6,768,000 is required for water supply storage in accordance with the Water Supply Act of 1958. A contract was signed by the State on September 6, 1978 and was approved by the Secretary of the Army on October 30, 1978. Utilization of storage was initiated in December 1979. Repayment also began at that time.

Operations during fiscal year. Visitation for FY 2003 was 7,959,056 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

7. HARLAN COUNTY LAKE, REPUBLICAN RIVER, NE

Location. Dam is on main stem of Republican River about 235 miles above confluence of stream with Smoky Hill River. Site is in Harlan County, 1-1/2 miles south of Republican City and 13 miles west of Franklin, Nebraska.

Existing project. An earthfill dam about 107 feet above streambed with a total length of 11,827 feet, including a gate-controlled, concrete, gravity-type spillway section near the center of dam. Reservoir provides storage capacity of 814,111 acre-feet (500,000 for flood control and 314,111 [sediment survey effective January 2001] for irrigation, sedimentation allowance, and other authorized purposes.). Initial cost of constructing the project was $45,279,532. Total Federal cost of project, including $1,017,623 for major rehabilitation work and $1,832,394 supplemental recreation development (Code 710), is $48,129,549. Construction of the project was initiated in August 1946. The project was placed in operation in December 1952. Major rehabilitation work was completed in FY 1968.

Local cooperation. Section 2, Flood Control Act of 1938, applies.

Operations during fiscal year. Visitation for FY 2003 was 6,879,339 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

8. HILLSDALE LAKE, BIG BULL CREEK, KS

Location. The project is located approximately 12 miles above the mouth of Big Bull Creek, a tributary of the Marais des Cygnes River and about 2½ miles west of Hillsdale, in Miami County, Kansas.

Existing project. An earthfill embankment about 11,600 feet long (including approximately 3,300 feet of dike section) about 75 feet above rising valley flood plain. The spillway is gravity type uncontrolled and the outlet works are controlled. The total reservoir storage capacity is 160,000 acre-feet (81,000 for flood control, 11,000 for sediment reserve, and 68,000 for multipurpose storage for water supply, water quality control, and recreation). Construction was initiated in December 1974, and the project was placed in operation in October 1981. Federal cost of construction was $64,161,400.

Local cooperation. Section 2, Flood Control Act 1938, applies. Local interests must make reimbursement of $21,145,338 for water supply storage in accordance with Water Supply Act of 1958. The Kansas Water Resources Board signed a contract in January 1974, approved by the Secretary of the Army in April 1974, for the entire 53,000 acre-feet of water supply storage. The Kansas Department of Wildlife and Parks has s 50-year lease on 12,880 acres for management of land and water areas for public park, recreational, and fish and wildlife purposes.

Operations during fiscal year. Visitation for FY 2003 was 1,925,955 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

9. KANOPOLIS LAKE, SMOKY HILL RIVER, KS

Location. The dam is on the Smoky Hill River about 184 river miles above the mouth of the stream, and about 11 miles northwest of Marquette, Kansas.

Existing project. An earthfill dam about 131 feet above streambed, having a total length of 15,360 feet, including 4,070 feet of dike section on the left abutment and 2,550 feet of dike section on right abutment. The reservoir provides storage capacity of 450,000 acre-feet, (400,000 for flood control and 50,000 for recreation and streamflow regulation). Outlet works and spillway are in right abutment. Initial cost of constructing the project was $12,327,735. Total Federal cost of project, including $249,492, supplemental recreational development (Code 710), was $12,577,227. Construction was initiated in June 1940, and project was placed in operation in May 1948.

Local Cooperation. Section 2, Flood Control Act of 1938, applies.

Operations during fiscal year. Visitation for FY 2003 was 1,462,425 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

10. LITTLE BLUE RIVER LAKES, MO

Location. This project consists of two lakes in Jackson County, Missouri, located in Kansas City, Missouri, and suburban communities. The Blue Springs Lake site is on the East Fork of the Little Blue River about ½ mile south of U,S. Highway 40, and the Longview Lake site is on the main stem at approximately 109th Street.

Existing Project. The Blue Springs dam is an earthfill embankment about 2,500 feet long and rising about 78 feet above the streambed, with an uncontrolled service spillway and uncontrolled outlet conduit. The total reservoir storage capacity is 26,600 acre-feet (15,700 for flood control, 10,600 for multipurpose storage for water quality and recreation, and 300 for sedimentation).

The Longview dam is an earthfill embankment about 1,900 feet long and rising about 120 feet above the streambed, with an uncontrolled service spillway and an uncontrolled outlet conduit. The total reservoir storage capacity is 46,900 acre-feet (24,300 for flood control and 20,600 for multipurpose storage for water quality and recreation, and 2,000 for sedimentation). Federal cost (1992) for both lakes through construction of the project was $140,809,200. Construction was initiated in September 1977, and the project became operational in September 1988.

Local cooperation. Section 2 of the Flood Control Act of June 28,1938 applies. Local interest must share in separable costs allocated to recreation in accordance with Federal Water Project Recreation Act of 1965. The Jackson County Legislature approved a recreation cost-sharing contract on July 5, 1974, which was approved by the Secretary of the Army on June 24, 1976. A supplemental agreement, signed by Jackson County officials on June 5, 1978, and approved by the Secretary of the Army January 10, 1979, revised the existing contract to include additional costs involved in raising the multipurpose pool elevation at the Blue Springs Lake. Reimbursement for recreation was $15,047,000 of which $450,000 was accomplished during construction by local interests.

Operations during fiscal year. Project is complete. Land acquisition is complete. Visitation for FY 2003 was 2,471,342 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

11. LONG BRANCH LAKE, LITTLE CHARITON RIVER, MO

Location. The Damsite is on the East Fork Little Chariton River in north central Missouri about 2 miles west of Macon in Macon County.

Existing project. An earthfill dam about 3,800 feet long and about 71 feet high with an uncontrolled outlet conduit and an uncontrolled service spillway in the right abutment. Total reservoir storage capacity is 65,000 acre-feet (29,000 for flood control, 4,000 for sediment reserve, and 32,000 of multipurpose storage for water supply, water quality control, fish and wildlife, and recreation). Estimated Federal cost (1997) is $20,288,000, and estimated non-Federal cost is $3,605,000. Construction was initiated in March 1973. The project was placed in useful operation for flood control on September 1, 1980.

Local cooperation. Section 2, Flood Control Act of June 28, 1938 applies. Local interests must make reimbursement of $5,567,000 for water supply storage in accordance with Water Supply Act of 1958 and share in separable cost of $3,589,000 allocated to recreation in accordance with Federal Water Project Recreation Act of 1965. On September 15, 1972 the Secretary of the Army approved a contract signed by the City of Macon, Missouri, for water supply and recreation development. Missouri State agencies indicated their intent to sponsor future water supply and signed a contract on June 17, 1977 to sponsor recreational development in lieu of the City of Macon. After review by the Office of the Secretary of the Army, the state signed the contract in December 1979, and it was approved by the Secretary of the Army on April 18, 1980. Supplemental Agreement No. 1 to this contract was approved December 28, 1993 to provide for additional recreational facilities. Additional facilities have been designed

Operations during fiscal year. Visitation for FY 2003 was 1,102,534 visitor hours. Project is 100 percent complete on scheduled work. Maintenance: Activities consisted of ordinary operation and maintenance.

12. MELVERN LAKE, MARAIS DES CYGNES (OSAGE) RIVER, KS

Location. Damsite is on Marais des Cygnes (Osage) River in Osage County, Kansas, about 4 miles west of Melvern, Kansas.

Existing project. An earthfill dam about 9,700 feet long and about 98 feet high with an uncontrolled chute-type spillway in the left abutment. Total reservoir storage capacity is 363,000 acre-feet (200,000 for flood control, 26,000 for sediment reserve, and 137,000 for multipurpose storage for water supply, water quality control, and recreation). Cost of constructing the completed project was $37,436,530. Construction was initiated in July 1967, and the project was placed in operation in August 1972.

Local cooperation. Section 2, Flood Control Act of 1938 applies. Project storage was reallocated in 1989 to include municipal and industrial water supply in accordance with provisions of the Water Supply Act of 1958. In accordance with the provisions of the Memorandum of Understanding between the State of Kansas and the Department of the Army dated 1985, payment in full of $7,131,834 for 50,000 acre-feet of water supply storage was made in March 1995. Utilization of storage for water supply was initiated in September 1993 under an interim contract and continues under the current contract signed in January 1995.

Operations during fiscal year. Visitation for FY 2003 was 5,295,054 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

13. MILFORD LAKE, REPUBLICAN RIVER, KS

Location. The Damsite is on the Republican River near the village of Alida about 10 miles above confluence of Republican and Smoky Hill Rivers which form Kansas River; and about 4 miles northwest of Junction City, Kansas.

Existing project. An earthfill dam about 6,300 feet long and 126 feet high with an uncontrolled service-chute spillway in a saddle on right abutment. Total reservoir

storage capacity is 1,160,000 acre-feet (700,000 for flood control, 160,000 for sediment reserve and 300,000 of multipurpose storage for water supply, water quality control, and recreation). Water supply storage is included in the project at the request of the Governor of Kansas under provisions of the Federal Water Supply Act of 1958. Initial cost of constructing the completed project was $48,268,843. Total Federal cost of project, including $1,297,649 supplemental recreational development (Code 710), was $49,566,492. Construction was initiated in July 1961. The project was placed in operation in June 1965.

Local cooperation. Section 2, Flood Control Act of 1938 applies. Local interests must make reimbursement of $12,162,134 for water supply storage in accordance with Water Supply Act of 1958. Utilization of storage for water supply was initiated in October 1984. Reimbursement was initiated, at the option of the State, in September 1976.

Operations during fiscal year. Visitation for FY 2003 was 6,275,920 visitor hours. Maintenance: Activities included ordinary operation and maintenance.

14. MISSOURI RIVER LEVEE SYSTEM IA, NE, KS AND MO (RULO, NE, TO MOUTH)

Location. On both banks of the Missouri River from Sioux City, Iowa, about 760 miles to the mouth near St. Louis, Missouri. The portion of the project in Kansas City District extends from Rulo, Nebraska, 498 miles to mouth.

Existing project. A series of levee units and appurtenant works along both sides of Missouri River from Sioux City, Iowa, to the mouth, for protection of agricultural lands and small communities against floods. Estimated fully funded (2002) for the active portion of the project from Rulo, Nebraska, to mouth is $209,379,000, including $157,521,000 Federal and $22,720,000 non-Federal contributions, and costs of $29,138,000 for lands and damages are to be borne by local interests. Remaining portion of project consists of units on which planning and construction are being delayed pending restudy to assure that additional levee construction is economically justified. Current cost estimate for deferred, inactive, and deauthorized portion of project Rulo, Nebraska, to mouth is $168,865,000 (1964, 1986, and 1987 price levels), of which $153,233,000 is Federal cost for construction and $15,632,000 for lands and damages to be borne by local interests. Construction of the project was initiated in June 1948.

Local cooperation. Section 3, Flood Control Act of 1936 applies. Fully complied with for all completed units and units under construction. Local sponsors provide all operation and maintenance.

Operations during fiscal year. Status of individual units of active portion at end of fiscal year is shown in Table 27-H on Missouri River Levee System. The contract to construct Unit L-385 was awarded on 28 March 2002 with the notice to proceed being issued on April 26, 2002. The project is about 81% complete as of January 2004. The contractor is a head of schedule and is expected to complete in 4th Quarter FY 04. The GRR for the Unit L-142 was approved in 2001 and the LRR was approved in September of 2003. Currently the design of the project is 65% complete.

15. PERRY LAKE, DELAWARE RIVER

Location. The Damsite is on the Delaware River about 5 miles above the mouth in Jefferson County, and about 3 miles northwest of Perry, Kansas.

Existing project. An earthfill dam about 7,750 feet long constructed to an elevation about 95 feet above valley floor with gated-outlet works and an uncontrolled spillway in left abutment. Total reservoir storage capacity is 770,000 acre-feet (480,000 for flood control, including 140,000 for sediment reserve and 150,000 of multipurpose storage for water supply, water quality control, and recreation). Water supply storage is included in the project plan at the request of the State of Kansas under provisions of the Federal Water Supply Act of 1958. Initial cost of constructing the completed project was $48,371,706. Total Federal cost of project, including $724,212 supplemental recreational development (Code 710), is $49,095,918. Construction was initiated in March 1964, and the project was placed in operation in January 1969.

Local cooperation. Section 2, Flood Control Act of 1938 applies. Local interests must make reimbursement of $8,551,805 for water supply storage in accordance with Water Supply Act of 1958. Utilization of storage for water supply was initiated in October 1991. Reimbursement was initiated at the option of the State in September 1978.

Operations during fiscal year. Visitation for FY 2003 was 3,789,215 visitor hours. Maintenance: Activities included ordinary operation and maintenance.

16. PICK-SLOAN MISSOURI BASIN PROGRAM (KANSAS CITY DIST.)

Location. Flood control improvements included in this project are on and along the Missouri River and several of its principle tributaries, in states comprising the Missouri River Basin.

Existing project. The Pick-Sloan Missouri Basin program for flood control and other purposes in Missouri River Basin provides for levees along Missouri River between Sioux City, Iowa, and the mouth, flood-protection works at certain municipalities, and reservoirs on main stem of Missouri River and on tributaries for control of flooding. (See Table 27-B for authorizing legislation and Table 27-I on Kansas City District projects included in Pick-Sloan Missouri Basin program.) See individual project reports.

17. POMME DE TERRE LAKE POMME DE TERRE RIVER, MO

Location. The dam is on the main stem Pomme de Terre River, about 44 miles above the mouth in Hickory County, Missouri. The lake extends upstream into Polk County, Missouri. The site is about 4 miles south of Hermitage, Missouri, and 20 miles north of Bolivar, Missouri.
Existing project. An earth and rockfill dam about 4,630 feet long constructed to about 155 feet above riverbed and a dike section on left abutment about 2,790 feet long, providing storage capacity of 650,000 acre-feet (407,000 for flood control and 243,000 for sedimentation and multi-purpose). Initial cost of constructing the complete project was $14,946,784. Total Federal cost of project, including $329,140 area redevelopment and $2,089,529 supplemental recreational development (Code 710), is $17,365,453. Construction was initiated in January 1957, and the project was placed in useful operation in October 1961.
Operations during fiscal year. Visitation for FY 2003 was 11,744,334 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

18. POMONA LAKE, ONE HUNDRED TEN MILE CREEK, KS

Location. The dam is on One Hundred Ten Mile Creek, a tributary of Marais des Cygnes (Osage) River, 7 miles above mouth of stream in Osage County, Kansas, about 8 miles northwest of Pomona, Kansas, and 34 miles upstream from Ottawa, Kansas.
Existing project. An earthfill dam 7,750 feet long constructed to an average height of about 85 feet above streambed, with gated-outlet works and an ungated chute-type spillway near left abutment. Total reservoir storage capacity is 230,000 acre-feet (160,000 for flood control, 14,000 for sediment reserve, and 56,000 of multipurpose storage for water quality control, and recreation). Initial cost of constructing the completed project was $13,272,108. Total Federal cost of project, including $731,130 supplemental recreational development (Code 710), was $14,003,238. Construction began in July 1959, and the project was placed in operation in October 1963.
Local cooperation. Section 2, Flood Control Act of 1938 applies. Pomona has water supply reimbursement under Water Supply Act of 1958 totaling $862,923.
Operations during fiscal year. Visitation for FY 2003 was 4,487,007 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

19. RATHBUN LAKE, CHARITON RIVER, IA

Location. The Damsite is on the Chariton River about 7 miles north of Centerville and 1 mile north of Rathbun, Appanoose County, Iowa.
Existing project. An earthfill dam 10,600 feet long constructed to an elevation about 86 feet above valley floor, with gated-outlet works and an uncontrolled service chute with paved sill spillway about a mile upstream from left abutment. Total reservoir storage capacity is 552,000 acre-feet (339,000 for flood control, 24,000 for sediment reserve and 189,000 of multipurpose storage for navigation, water quality control, and recreation). Initial cost of constructing the project was $27,033,210. Total Federal cost of project, including $588,948 supplemental recreation development (Code 710), was $27,622,158. Construction of the project was initiated in September 1964 and completed in November 1969. The operating plan for this project was revised to reduce flood control releases during critical times of the year to allow local farmers better access during planting and harvesting and to facilitate field drainage and drying out. The revised plan has resulted in more frequent high pool elevations than anticipated, which has inundated roads and recreation facilities. A shoreline erosion study was accomplished; and a supplement to the master plan was approved, which resulted in relocation of recreation facilities and bank stabilization work to compensate for the higher lake levels.
Local cooperation. Section 2, Flood Control Act of 1938 applies.
Operations during fiscal year. Visitation for FY 2003 was 5,600,757 visitor hours. Maintenance: Activities included ordinary operation and maintenance.

20. SMITHVILLE LAKE, LITTLE PLATTE RIVER, MO

Location. The Damsite is on the Little Platte River about 1 mile northeast of Smithville and about 5 miles north of Kansas City, in Clay and Clinton Counties, Missouri.
Existing project. Earthfill dam about 4,200 feet long and 95 feet high with an uncontrolled service spillway. A dike about 2,400 feet long crosses a saddle in the left abutment. Total reservoir storage capacity is 246,500 acre-feet (92,000 for flood control, 52,300 for sediment reserve, and 102,200 of multipurpose storage for water supply, water quality control, and recreation). Cost of constructing the project was $87,685,314. Construction was initiated in November 1973, and the project was placed in operation in March 1982.
Local cooperation. Section 2, Flood Control Act of June 28, 1938 applies. Reimbursement of $24,000,000 will be required for water supply storage in accordance with Water Supply Act of 1958, and reimbursement of $7,500,000 will

be required for recreation development in accordance with Federal Water Recreation Act of 1965. Additional non-Federal contribution for recreation amounts to $737,000. All contracts for local cooperation were approved by the Secretary of the Army on November 27, 1972.
Operations during fiscal year. Visitation for FY 2003 was 6,543,542 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

21. TURKEY CREEK BASIN, KS & MO

Location: The Turkey Creek Basin is a 23-square mile area within Kansas City, KS and suburbs in Johnson and Wyandotte Counties in Kansas.
Existing Project. The recommended project is estimated to cost $82,500,000, with an estimated Federal cost of $50,967,000 and an estimated non-Federal cost of $31,533,000, including construction of channel modification and structures to control hillside runoff. This project was reauthorized in 2003 and has moved into Construction, General funding.
Local Cooperation. The PCA is being drafted and should be executed in 2004.
Operations during fiscal year. Work continued on Preconstruction Engineering and Design.

22. TUTTLE CREEK LAKE, BIG BLUE RIVER, KS

Location. The dam is on the main stem of the Big Blue River, about 12 miles above the stream mouth in Riley and Pottawatomie Counties, Kansas. Site is about 5 miles north of Manhattan, Kansas.
Existing project. An earth and rock-filll dam 7,500 feet long and 157 feet high. Total reservoir storage capacity is 2,346,000 acre-feet (1,933,000 for flood control, 228,000 for sediment reserve and 185,000 for multipurpose storage, for low-flow regulation, navigation, and recreation). Initial cost of constructing the completed project was $80,051,031. Total Federal cost of project, including $533,048 supplemental recreational development (ode 710), was $80,584,079. Construction began in October 1952. Project was placed in Operation in July 1962.
Local cooperation. Section 2, Flood Control Act of 1938 applies.
Operations during fiscal year. Visitation for FY 2003 was 2,655,336 visitor hours. The project provided primary water releases into the Big Blue and Kansas Rivers to meet minimum in-stream flow requirements in accordance with agreements with the state of Kansas. The project also provided water releases for supplemental navigation flows on the Missouri River for a portion of the navigation season in fiscal year 2003 Maintenance: Activities included ordinary operation and maintenance.
Dam Safety Assurance Program: Evaluation of seismic and hydrologic aspects of Tuttle Creek Dam has been underway for several years as part of the Dam Safety Assurance Program. In 2003, the final engineering Evaluation Report and Environmental Impact Statement were approved by Corps of Engineers headquarters and the Assistant Secretary of the Army for Civil Works. These approvals follow extensive community outreach, regulatory coordination, and Environmental Protection Agency approval in 2001 and 2002. These approvals authorized the construction of modifications totaling approximately $206 million at the Tuttle Creek project.

23. WILSON LAKE, SALINE RIVER, KS

Location. The dam is on the Saline River about 130 miles above its mouth, near the eastern edge of Russell County, Kansas, about 50 miles west of Salina, 10 miles north of Wilson, and 20 miles east of Russell, Kansas.
Existing project. An earthfill dam about 5,600 feet long and 160 feet high with a gated-outlet works, chute spillway, storage capacity is 776,000 acre-feet (511,000 for flood control, 40,000 for sediment reserve and 225,000 multipurpose storage for irrigation, navigation, and low-flow regulation). Initial cost of constructing the project was $20,015,023. Total Federal cost of project, including $448,344 supplemental recreational development (Code 710), was $20,463,367. Construction began in April 1961, and the project was placed in operation in December 1964.
Local cooperation. Section 2, Flood Control Act of 1938, applies.
Operations during fiscal year. Visitation for FY 2003 was 3,276,189 visitor hours. Maintenance: Activity included ordinary operation and maintenance.

24. SCHEDULING OF FLOOD CONTROL RESERVOIR OPERATIONS

Under sections 7 and 9, 1944 Flood Control Act, the Corps is responsible for detailed scheduling of operations concerning storage capacity reserved for or assigned to flood control in reservoirs constructed by Bureau of Reclamation as well as those constructed by the Corps. Fiscal Year costs were $313,000.

25. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Flood Control Act of June 22, 1936, P.L. 738, and subsequent acts require local interests to furnish assurances that they will maintain and operate certain local protection projects after completion in accordance with regulations prescribed by the Secretary of the Army. District Engineers are responsible for administration of these regulations within

boundaries of their respective district. (See Table 27-J on inspection of completed flood control projects.)

Multiple Purpose Projects
Including Power

26. HARRY S. TRUMAN DAM AND RESERVOIR, Osage River, MO

Location. The Damsite is on the main stem of the Osage River about 1.5 miles northwest of Warsaw, Benton County, Missouri. Reservoir extends into Bates, Henry, Hickory, St. Clair, and Vernon Counties, Missouri.
Existing project. An earthfill dam about 5,000 feet long constructed to an average height of about 96 feet above streambed, including a gate-controlled overfall spillway and a power installation consisting of six inclined pump-generating units with a combined generating capability of 160,000 kilowatts. Total reservoir storage capacity is 5,202,000 acre-feet (3,918,000 for flood control, 244,000 for sediment reserve, and 1,040,000 multipurpose storage for power, low-flow regulation, and recreation). The operating purposes of the project are flood control, hydroelectric power, water supply, recreation, and fish and wildlife. Public Law 91-267, approved May 26, 1970, authorized a change in project name from Kaysinger Bluff Dam and Reservoir, Osage River Basin, Missouri, to the Harry S. Truman Dam and Reservoir. Initial cost of constructing the completed project was $550,909,000. Construction of relocated Missouri Highway M-13 was initiated September 1964 and completed May 1966. Construction of the dam and reservoir was initiated in October 1964. The project was operational for flood control in October 1979, and multipurpose pool was reached in November 1979. The first power unit was placed on line on December 22, 1979. Subsequent problems with the turbine bearings required remedial repair that was completed in FY 1999. Through September 2003, power generation totaled 5,872,556,000-kilowatt hours. Of the gross income from the sale of power by Southwestern Power Administration, $144,854,884 was allocated to the Corps of Engineers for project power operating costs, interest, and investment recovery.
Local cooperation. Section 2, Flood Control Act of 1938 applies.
Operation during fiscal year. Visitation for FY 2003 was 10,480,021 visitor hours. Project is complete. During FY 2003, 57,410,000 kilowatt-hours of electrical power were generated. Maintenance activities consisted of ordinary operation and maintenance.

27. STOCKTON LAKE, SAC RIVER, MO

Location. The Damsite is on the Sac River about 49.5 miles above its confluence with the Osage River, and about 1 mile east of Stockton, Cedar County, Missouri. The lake extends into Dade and Polk Counties.
Existing project. A rock-shell dam with impervious core about 5,100 feet long constructed to an average height of about 128 feet, -----with a gated overfall spillway and a 45,200-kilowatt power installation. Total reservoir storage capacity is 1,674,000 acre-feet (774,000 for flood control, 25,000 for sediment reserve and 875,000 multipurpose storage for power and recreation). The authorized project purposes are flood control, hydroelectric power, water quality, water supply, recreation, and fish and wildlife. Initial cost of constructing the completed project was $75,715,300. Cost of the project, including $3,758,000 for downstream channel work and $502,057 for supplemental recreational development (Code 710), was $79,975,357. Construction was initiated in October 1963, and the project was placed in operation in December 1969. Power operation problems were encountered with the initial operation in March 1973 because the downstream channel did not have the capacity which earlier observations and computations indicated. As a result, it has been necessary to restrict the power operation to about the 30,000-kilowatt level. Right-of-way for construction of a channel cutoff and bridge at Horseshoe Bend were acquired, and construction completed. Sloughing easements downstream to Caplinger Mills were acquired. Completion assured downstream channel capacity to Caplinger Mills of 8,000 c.f.s. for powerplant operation. Discharge in this range will accommodate power operations at a 39,500-kilowatt level. Through September 2003 power generation totaled 1,762,332,000 kilowatt-hours. Of the gross income from the sale of power by Southwestern Power Administration, $39,971,632 was allocated to the Corps of Engineers for project operating costs, interest, and investment recovery.
Local cooperation. Section 2, Flood Control Act of 1938, applies.
Operations during fiscal year. Visitation for FY 2003 was 6,545,670 visitor hours. The project is complete and in operational status. During FY 2003, 18,801,000 kilowatt-hours of electrical power were generated. Maintenance: Activities consisted of ordinary operation and maintenance, preservation of archeological site known as “Big Eddie” and installation of prefab shower building.

Work Under Special Authorities

28. CONTINUING AUTHORITIES

Small Flood Control Projects Not Specifically Authorized by Congress (Sec. 205, 1948 Flood Control Act, Public Law 858, 80th Cong., June 30, 1948, as amended).
Each project selected must be complete in itself, economically and environmentally justified, and limited to a Federal cost of not more than $7 million. The local

sponsoring agency must agree to provide without cost to the Department of the Army, all lands, easements, and rights-of-way, including highway bridge, and utility relocations and alterations; hold and save the Department of the Army free from damages; maintain and operate the project after completion; assume all project costs in excess of the Federal cost limit; and prevent future encroachments on improved channels. The non-Federal sponsors of Section 205 projects are required to pay 50 percent of all feasibility study costs over $100,000. For structural flood control projects, the sponsor must pay in cash during the construction at least 5 percent of the construction cost. The sponsor's cash and other contributions must equal 35 percent of the total construction cost, but will not be required to exceed 50 percent.

There were no Section 205 projects under construction in FY 2003.

See Table K for expenditures under Section 205 during 2003.

Emergency Streambank Protection (Section 14, 1946 Flood Control Act, Public Law 526, 79th Cong., July 24, 1946) as amended.

Each project selected must be complete in itself, engineering feasible, economically justifiable environmentally acceptable, and limited to a Federal statutory cost of not more than $1,000,000. The local sponsoring entity must agree to provide without cost to the Department of the Army, all lands, easements, and rights-of-way, including highway, highway bridge, and utility relocations and alterations required for project construction; provide over the period of construction, an amount equal to not less than 35 percent or more than 50 percent of total project cost, at least 5 percent of which will be cash; operate, maintain, repair, replace, and rehabilitate the project upon completion; hold and save the Department of the Army free from damages arising from the construction, operation, and maintenance of the completed project; and assume all project costs in excess of the Federal statutory cost limit. Construction was completed on Phase II of the Eudora Bend Bridge protection project of the Kansas River, and the Missouri Route 169 Bridge protection project , on the Grand River.

See Table 27-K for Emergency Streambank Protection expenditures during FY 2003.

Project Modifications for Improvement of Environment (Section 1135, Water Resources Development Act of 1986, Public Law 662, 99th Cong., November 17, 1986).

Section 1135 authorizes review of the operation of completed water resources projects to determine need for modifications for the purpose of improving environmental quality. Construction of Phase II of the Milford Lake Section 1135 project at the north end of Milford Lake was completed, and significant progress was made on the design of Phase III in FY2003. Overall, the project will provide over 2,000 acres of wetland habitat restoration to the Milford lake project on lands adversely by the lake project or previously in crop production. The overall project is estimated to complete in FY 2005.

See Table 27-K for Section 1135 studies status and expenditures for FY 2003.

Aquatic Ecosystem Restoration (Section 206, Water Resources Development Act of 1996, Public Law 303, 104th Cong., October 12, 1996).

Section 206 authorizes small aquatic ecosystem restoration projects to improve the quality of the environment if in the public interest and cost effective.

Construction was completed on the Lake Nemaha wetland restoration project near Seneca, Kansas on the south fork of the Big Nemaha River, project in FY2003. Located in northeastern Kansas, the project will provide approximately 150 acres of wetland habitat complex, with about 10 acres of deeper water fisheries habitat. The sponsor is the Kansas Division of Wildlife and Parks, with funding also provided by a local stakeholder group. Construction was also completed on the Straightwater Marsh wetlands project in Seward County, Nebraska, three miles north of Goehner, NE. The project will provide approximately 150 acres of marsh habitat and 83 acres of wetland fringe habitat in a critical zone of the migratory bird central flyway.

See Table 27-K for Section 206 Studies status and expenditures for FY 2003.

29. EMERGENCY RESPONSE ACTIVITIES

A. Disaster Preparedness Program.

(1) The Disaster Preparedness Program (DPP) involves planning, training, inspection, supplies and equipment, and personnel. Planning activities involve development of District response and recovery plans in support of natural/national disasters and terrorist activities.

(2) Activities to support disaster preparedness in FY03 included training of the District's Emergency Water Planning and Response Team (PRT). Primary and alternate team members participated in a HQ sponsored training/exercise during the fourth quarter of FY03. Several District employees took interactive ENGLink training on-line provided by the Readiness Support Center in Mobile. Each training session lasts from 15 minutes to an hour and participation is on a voluntary basis. ENGLink messages are sent periodically reminding all of scheduled training.

(3) EM personnel participated in drought assessment meetings with the states of Kansas and Missouri as drought

conditions continued throughout the District during FY03. No requests for drought assistance were received by CENWK during FY03.

(4) Disaster preparedness includes operational readiness, maintaining the necessary supplies and equipment to support disaster response. To support flood-fighting efforts, an inventory is maintained of over 1.4 million sandbags, 53 pumps and 2 sandbag filling machines. Three IDIQ Emergency Flood Fight contracts were renewed during FY03 and are in-place should they be needed.

(5) Response operations included activating the EOC for the May Severe Storms and Tornadoes in Missouri and Kansas. The Stockton Lake Project Office was severely damaged in the storm. As a result of the storms, the District was assigned FEMA technical assistance missions for Debris Removal and Temporary Housing. A Debris Removal PRT, Temporary Housing PRT Management elements, and an ESF #3 Team Leader were deployed to assist the States of Missouri and Kansas. In response to Hurricane Isabel devastation on the east coast in September; John Connor, Rapid Needs Assessment (RNA); Justin Pummell, (GIS); and Vira Dobbins and Marge Whipple, Logistics Management (LM) team members were mobilized and deployed. CENWK's Water PRT was also mobilized and deployed to Virginia in response to Hurricane Isabel. Water PRT members deployed included Paul Flamm, Pete Hentschel, Margie Slavens, Alice Jeffres, and Greg Huber.

(6) EM personnel began deploying District volunteers to Afghanistan and Iraq in response to the Global War on Terrorism (GWOT). Thirteen District employees were deployed and 4 returned prior to the end of FY 03. This effort is expected to increase during FY04.

B. Public Law 84-99. Rehabilitation of Flood Control Works. Approximately 50 inspections of active PL 84-99 Program non-Federal Levees were completed during FY03. Flooding during May and June 2002 caused damage to a Federal Levee known as Missouri River Levee System (MRLS) L-246. The contract to repair these damages was awarded in March 2003 and all repair work was completed in September 2003.

C. **Catastrophic Disaster Response Planning. New Madrid/Cascadia/COOP.**

(1) Emergency Management Branch conducted and hosted the New Madrid Earthquake Seminar in November with approximately 80 attendees. An After Action Report (AAR) was subsequently prepared.

(2) In October 2002, the Commander was briefed by COOP team members on the Continuity of Operations (COOP) OPLAN prepared in FY 02. The OPLAN focuses on relocating essential employees to an alternate location for a period up to 30 days and accomplishing critical essential business recovery functions of the district headquarters. The Commander approved the COOP OPLAN and the suggestion was made to prepare site specific COOP Plans for Project Offices as well.

(3) Emergency Management Branch attended FEMA Region VII Regional Interagency COOP Exercise Design Team Training. Monthly COOP Work Group Meetings and Exercise Design Team Meetings began in the 3rd Qtr of FY 03 in preparation for the FY 04 Kansas City Corporate Group COOP Tabletop Exercise.

(4) Emergency Management Branch participated in the Bagnell Dam Emergency Action Plan Tabletop Exercise the 4th Qtr of FY03 at Lake Ozark, Missouri.

(5) Emergency Management Branch attended the FEMA Regional Interagency Steering Committee Meeting addressing animal airborne diseases in 4th Qtr FY 03

30. GENERAL INVESTIGATIONS

Fiscal year 2003 costs totaled $2,321,074 for all General Investigations activities. See Table 27-L, which covers Surveys, Collection and Study of Basic Data and Preconstruction Engineering and Design expenditures in FY 2003.

Other Activities

31. CATASTROPHIC DISASTER PREPAREDNESS PROGRAM

FY 2003 expenditures of $117,546 provided for activities required for local and national preparedness.

32. MISSOURI RIVER BASIN COLLABORATIVE WATER RESOURCES, PLANNING/ PARTNERING PROCESS

Missouri River Basin Association and the Corps will manage and facilitate the process of collaboration for some limited studies. The collaborative effort allows input from the states, tribes, and Federal agencies economic and environmental interest groups and the general public on both the operation issues, i.e. Master Manual, and non-operational issues. In addition, the collaborative process could address recreation industry development, ecosystem management, streambank erosion, project mitigation, structural changes for endangered species, environmental monitoring tribal water rights, and support to navigation and agriculture. Fiscal Year 2003 costs were $43,350.

33. REGULATORY PROGRAM

Statutes. The Corps of Engineers is charged with protecting the public interest in all waters of the United States, including wetlands. This is accomplished through a Department of the Army permit program pursuant to Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act.

Operations during fiscal year 2003. The Kansas City District completed 2,277 permit actions during the year. A total of 75 violations were reported and evaluated - 81 were resolved by issuance of permits, voluntary restoration, administrative action or other means. Special projects and significant actions during the year included initiation of the biannual monitoring data collection for 12 permitted commercial dredging operations on the Kansas River to aid in ongoing permitting efforts; continued informal consultation with the U.S. Fish and Wildlife Service for the reissuance of 8 expiring commercial dredging permits, and one new permit, on the Missouri River; completed one merged NEPA/Section 404 project with the Federal Highway Administration/Missouri Department of Transportation and initiated 1 new merged project with the Federal Highway Administration/Kansas Department of Transportation; completed a new General Permit for watershed dams constructed by the Natural Resources Conservation service in Missouri; completed a Final Environmental Impact Statement for the South Lawrence Trafficway in Kansas (provided Final EIS for public comment); continued ongoing consultation with Tribal Governments and other interested parties to address potential project-related impacts associated with the proposed South Lawrence Trafficway; Fiscal Year costs totaled $3,085,534.31 for all regulatory activities. See Table M for Permit Evaluation, Enforcement, Administrative Appeals and Environmental Impact Statement expenditures.

TABLE 27-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total cost to Sep 30, 2003
1.	Missouri River,	New Work:					
	Sioux City, IA	Approp.	--	--	--		237,942,190 1/
	to Mouth (Rulo,	Cost	--	--	--		237,942,190 1/
	NE, to Mouth)	Maint.					
	(Federal Funds)	Approp.	5,460,000	4,351,000	5,942,332	4,788,242	357,133,106 2/
		Cost	5,460,505	4,351,000	5,694,232	5,036,342	357,921,348 3/
	Contributed Funds	New Work:					
		Approp.	--	--	--	--	816,190
		Cost	--	--	--	--	816,190
		Maint.					
		Approp.	--	--	--	--	22,642
		Cost	--	--	--	--	22,642
	Consolidated	New Work:					
	Summary	Approp.	--	--	--	--	238,758,380 1/
		Cost	--	--	--	--	238,758,380 1/
		Maint.					
		Approp.	5,460,000	4,351,000	5,942,332	4,788,242	357,943,990 2/
		Cost	5,460,505	4,351,000	5,694,232	5,036,342	357,943,990 3/
2.	Missouri River Fish	New Work:					
	& Wildlife Mitigation,	Approp.	5,462,000	6,818,400	5,461,000	7,747,000	46,618,400
	IA, NE, KS & MO	Cost	5,509,102	6,832,746	5,465,854	7,678,428	46,469,207
3.	Blue River Basin	New Work:					
	Kansas City, MO	Approp.	294,000	243,000	200,000	354,000	1,937,000
		Cost	298,719	226,421	216,099	352,908	1,936,168
4.	Blue River Channel	New Work:					
	Kansas City, MO	Approp.	10,002,000	8,906,250	10,366,300	3,884,100	186,501,821
	(Federal Funds)	Cost	8,705,818	10,138,014	10,382,769	3,904,409	186,434,677
	Contributed Funds	New Work:					
		Approp.	--	1,000,000	2,121,031	0	9,859,072
		Cost	155,295	250,693	1,745,059	1,474,203	9,570,144 5/
	Consolidated	New Work:					
	Summary	Approp.	10,002,000	9,906,250	12,487,331	3,884,100	196,360,893
		Cost	8,861,113	10,388,707	12,127,828	5,378,612	196,004,821 5/
5.	Brush Creek,	New Work:					
	Kansas City, MO	Approp-	--	--	--	--	14,390,000
	(Federal Funds)	Cost	39	11,000	4,909	992	14,390,059
	Contributed Funds	New Work:					
	Authorized Project	Approp.	--	--	--	--	1,225,767
		Cost	--	--	--	--	1,225,767
	Expanded Project[6]	New Work:					
		Approp.	--	--	--	--	5,785,235
		Cost	--	--	--	--	6,051,500 6/
	Consolidated	New Work:					
	Summary	Approp.	--	--	--	--	21,401,002
		Cost	39	11,000	4,909	992	21,667,326 6/
6.	Clinton Lake,	New Work:					
	Wakarusa	Approp.	--	--	--		57,415,433
	River, KS	Cost	--	--	--		57,415,433 7/
		Maint.					
		Approp.	1,517,000	1,700,000	2,351,000	2,045,227	34,248,227
		Cost	1,517,000	1,700,000	2,346,000	2,029,397	34,227,397

TABLE 27-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total cost to Sep 30, 2003
7.	Harlan County	New Work:					
	Lake, Republican	Approp.	--	--	--	--	47,111,926
	River, NE	Cost	--	--	--	--	47,111,926 8/
		Maint.					
		Approp.	2,309,000	2,075,000	2,131,958	1,857,615	44,318,557
		Cost	2,309,000	2,031,000	2,171,958	1,861,615	44,318,557
		Rehab.					
		Approp.	--	--	--	--	1,017,623
		Cost	--	--	--	--	1,017,623
8.	Hillsdale Lake,	New Work:					
	Big Bull	Approp.	--	--	--	--	64,161,400
	Creek, KS	Cost	--	--	--	--	64,161,400
		Maint.					
		Approp.	905,000	759,000	869,000	702,910	16,489,780
		Cost	905,000	752,500	875,500	702,910	16,489,780
9.	Kanopolis Lake,	New Work:					
	Smoky Hill	Approp.	--	--	--	--	12,577,227
	River, KS	Cost	--	--	--	--	12,577,227 9/
		Maint.					
		Approp.	1,255,000	1,597,000	1,680,000	1,545,830	40,476,142
		Cost	1,255,000	1,597,000	1,680,000	1,545,830	40,476,142
10.	Little Blue River	New Work:					
	Lakes, Little Blue	Approp.	--	--	--	--	140,809,200
	River, MO	Cost	--	--	--	--	140,809,200 10/
		Maint.					
		Approp.	936,000	748,065	710,000	757,275	12,913,124
		Cost	936,000	748,065	710,000	757,275	12,913,124
11.	Long Branch Lake	New Work:					
	Little Chariton	Approp.	--	--	--	--	18,216,177
	River, MO	Cost	--	--	--	--	18,216,177
		Maint.					
		Approp.	814,000	843,000	852,600	872,562	14,493,712
		Cost	814,000	843,000	852,600	872,562	14,493,712
	Contributed	New Work:					
	Funds	Approp.	--	--	--	--	1,139,455
		Cost	--	--	--	--	1,139,332 11/
	Consolidated	New Work:					
	Summary	Approp.	--	--	--	--	19,355,632
		Cost	--	--	--	--	19,355,509
12.	Melvern Lake	New Work:					
	Osage (Marais des	Approp.	--	--	--	--	37,436,530
	Cygnes) River, KS	Cost	--	--	--	--	37,436,530
		Maint.					
		Approp.	1,957,000	1,950,000	2,197,000	2,062,975	39,633,129
		Cost	1,957,000	1,950,000	2,197,000	2,062,975	39,633,129
13.	Milford Lake,	New Work:					
	Republican River,	Approp.	--	--	--	--	49,566,492
	KS	Cost	--	--	--	--	49,566,492
		Maint.					
		Approp.	1,896,000	2,089,000	2,190,003	2,099,961	50,194,904
		Cost	1,896,000	2,039,000	2,240,003	2,080,961	50,175,904

TABLE 27-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total cost to Sep 30, 2003
14.	Missouri River Levee System IA, NE, KS and MO (Federal Funds)	New Work:					
		Approp.	2,926,000	2,140,600	7,834,479	14,728,800	95,290,730
		Cost	2,900,539	2,156,871	7,827,614	14,730,826	95,240,685
	Contributed Funds	New Work:					
		Approp.	--	53,500	1,250,000	12,200,500	13,504,000
		Cost	--	655	115,872	13,182,631	13,299,158 12/
	Consolidated Summary	New Work:					
		Approp.	2,926,000	2,194,100	9,084,479	26,929,300	108,794,730
		Cost	2,900,539	2,157,526	7,943,486	27,913,457	108,539,843 12/
15.	Perry Lake, Delaware River, KS	New Work:					
		Approp.	--	--	--	--	49,095,918
		Cost	--	--	--	--	49,095,918
		Maint.					
		Approp.	1,984,000	2,307,000	3,569,000	3,073,344	50,652,687
		Cost	1,984,000	2,282,000	3,285,000	3,372,344	50,642,687
17.	Pomme de Terre Lake, Pomme de Terre River, MO	New Work:					
		Approp.	--	--	--	--	17,365,452
		Cost	--	--	--	--	17,365,452
		Maint.					
		Approp.	1,948,282	2,155,000	2,212,172	2,104,979	46,226,894
		Cost	1,948,282	2,155,000	2,212,172	2,104,979	46,226,894
18.	Pomona Lake, One Hundred Ten Mile Creek, KS	New Work:					
		Approp.	--	--	--	--	14,003,238
		Cost	--	--	--	--	14,003,238
		Maint.					
		Approp.	1,667,064	2,251,000	2,012,000	1,909,894	41,912,028
		Cost	1,667,064	2,091,000	2,172,000	1,909,894	41,912,028
19.	Rathbun Lake, Chariton River, IA	New Work:					
		Approp.	--	--	--	--	27,622,159
		Cost	--	--	--	--	27,622,159
		Maint.					
		Approp.	2,045,000	2,361,000	2,405,000	2,408,892	53,094,103
		Cost	2,045,000	2,361,000	2,405,000	2,399,892	53,085,103
20.	Smithville Lake, Little Platte River, MO	New Work:					
		Approp.	--	--	--	--	87,685,314
		Cost	--	--	--	--	87,685,314
		Maint.					
		Approp.	944,000	1,082,000	1,075,000	1,135,945	22,408,793
		Cost	944,000	1,082,000	1,075,000	1,127,945	22,400,793
21.	Tuttle Creek Lake Big Blue River, KS	New Work:					
		Approp.	--	--	--	1,800,000	82,384,079 13/
		Cost	--	--	--	1,593,939	82,178,018
		Maint.					
		Approp.	2,283,000	3,111,000	3,543,000	1,839,230	54,290,462
		Cost	2,282,000	2,904,000	2,875,186	2,364,026	53,939,444
22.	Wilson Lake, Saline River, KS	New Work:					
		Approp.	--	--	--	--	20,463,367
		Cost	--	--	--	--	20,463,367
		Maint.					
		Approp.	1,551,000	1,834,000	1,728,000	1,696,187	37,921,791
		Cost	1,551,000	1,834,000	1,728,000	1,696,187	37,921,791

TABLE 27-A (continued) **COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total cost to Sep 30, 2003
24.	Scheduling Flood	Maint.					
	Control Reservoir	Approp.	293,000	302,000	313,000	263,117	58,399,569
	Operations	Cost	293,000	302,000	313,000	263,117	58,399,569
25.	Inspection of	Maint.					
	Completed Flood	Approp.	401,500	423,000	510,000	495,800	11,431,731
	Control Projects	Cost	401,500	423,000	510,000	495,800	11,431,731
26.	Harry S. Truman	New Work:					
	Dam & Reservoir	Approp.	--	--	--	--	550,909,000
	Osage River, MO	Cost	--	--	--	--	550,908,965
		Maint.					
		Approp.	7,063,583	7,626,059	7,894,119	7,307,396	154,189,319
		Cost	7,063,583	7,621,059	7,860,119	7,234,553	154,077,476
27.	Stockton Lake,	New Work:					
	Sac River, MO	Approp.	--	--	--	--	79,975,357
		Cost	--	--	--	--	79,975,357
		Maint.					
		Approp.	3,200,810	3,674,000	3,918,101	3,814,933	77,275,003
		Cost	3,200,810	3,674,000	3,909,101	3,772,843	77,223,913
30.	Mississippi River	Maint.					
	Main Stem Model	Approp.	--	--	--		90,000
	Development	Cost	--	--	--		90,000
31.	Catastrophic Disaster	Maint.					
	Response Planning	Approp.	92,600	114,935	117,546	0	4,153,431
		Cost	97,600	114,935	117,546	0	4,153,431
32.	Missouri River Basin	New Work:					
	Collaborative	Approp.	13,500	48,000	43,350		508,850
	Effort	Cost	13,500	48,000	43,350		508,850
33.	Anti-Terrorism/Force	New Work:	--	--	748,750	82,029	830,779
	Protection	Approp.	--	--	613,086	165,042	778,128
		Cost					

1. Includes $8,665,595 cost of new work for previous project.
2. Includes $738,109 for maintenance of previous project.
3. Includes funds appropriated under FY 1993 Emergency Flood Supplemental Appropriation, 96 3/7 3123: Missouri River, Rulo NE to Mouth, $40,000; and Milford Lake, KS, $40,000
4. Includes funds expended under FY 1993 Emergency Flood Supplemental Appropriation, 96 3/7 3123: Missouri River, Rulo, NE to Mouth, $1,119,854; Milford Lake, KS, $45,526; and Tuttle Creek Lake, KS, $53,087.
5. Exclude $35,296 non-Federal contribution not required for authorized Blue River Channel project (Blue River Channel Mobay Chemical (1984-1987)
6. Corps built Brush Creek Expanded Project requested by sponsor, City of Kansas City, MO, with all costs of betterments and enhancements not required by authorized project funded by sponsor. Excludes sponsor's contributions of $2,548,121 for Kansas City, MO, PED (FWKCM) 1987 through 1997; Park Features $2,159,888 for Park Design; $1,071,274 for Water Pollution Control during construction and $1,729,155 for Public works Department.
7. Excludes $118,805 non-Federal contribution not required for authorized Clinton Lake project (1973-1979).
8. Excludes cost of materials furnished Harlan County project without charge in the amount of $24,198.
9. Excludes cost of materials furnished Kanopolis Lake project without charge in the amount of $7,885.
10. Excludes $2,732,554 thru FY 1990 non-Federal contributions not required for authorized Little Blue Lakes project.
11. Corrected total. Excludes $42,149 interest during construction at Long Branch Lake project, and $500,000 work-in-kind.
12. Corps is relocating utilities requested by sponsor, City of Riverside, MO, that is required for the authorized project.

TABLE 27-B **AUTHORIZING LEGISLATION**

See Section In Text	Date of Act	Project and Work Authorized	Documents
1.		**MISSOURI RIVER, SIOUX CITY, IA, TO MOUTH (RULO, NE, TO MOUTH)**	
	Jul 25, 1912	Project adopted for securing a permanent navigable channel of 6-foot depth from Kansas City, MO to mouth.	H. Doc. 1287, 61st Cong., (contains latest published map). P.L. 241-62
	Aug 8, 1917	Fixed upstream limit of improvement at upper end of Quindaro Bend (274.8 miles from mouth) and provided for dredging.	H. Doc. 463, 64th Cong., (contains latest published map).
	Mar 3, 1925	For a minimum width of 200 feet and depth of 6 feet, with a reasonable additional width around bends, mouth to upper end of Quindaro Bend, Kansas City, MO.	P.L. 585-68
	Jan 12,1927	Appropriation of $12 million authorized for securing a 6-foot channel depth between Kansas City, MO, Quindaro Bend, and Sioux City, IA.	H. Doc.1120, 60th Cong., P.L. 560-70
	Jul 3, 1930	Appropriation of $15 million additional authorized; Additional allotments totaling $29,153,108 were made by Public Works Administration under provisions of National Industrial Recovery Act of 1933, and $9,669,791 allotted under provisions of Emergency Relief Appropriation Act of 1935.	P.L. 67-73 H.R. 11781 P.L. 520-71
	Aug 30, 1935	Completion of improvement from mouth to Sioux City, IA.	H. Doc. 238, 73d Cong., (contains latest published map). P.L. 409-73
	Mar 2, 1945	Securing a navigable channel of 9-foot depth and a minimum width of 300 feet.	H. Doc. 214, 76th Cong., (contains latest published map). P.L. 14-79
2.		**MISSOURI RIVER FISH AND WILDLIFE MITIGATION, MO, KS, IA & NE**	
	Nov 17, 1986	Project for mitigation of fish and wildlife losses Missouri River Bank Stabilization and Navigation Project, MO, KS, IA & NE: April 24, 1984, Report of Chief of Engineers, authorized at estimated cost of $51,900,000.	Title VI, Section 601(a), Water Resources Development Act of 1986, P.L. 99-662.
	Aug 17, 1999	The above act is modified to increase by 118,650 acres the amount of land and interest in land to be acquired for the project.	Title III, Section 334, Water Resources Development Act of 1999, P.L. 106-53
3.		**BLUE RIVER BASIN, KANSAS CITY, MO**	
	Oct 12,1996	Project for flood control along the left bank of the Blue River from U.S. Highway 71 upstream for a distance of about 1 1/4 miles in Jackson County, MO, to the Bannister Federal Complex levee: Report of the Chief of Engineers, dated Sep 5, 1996, at a total cost of $17,082,000, with an estimated Federal cost of $12,043,000 and an estimated non-Federal cost of $5,039,000.	Title I, Section 101(a), Water Resources Development Act of 1996, P.L. 104-303

TABLE 27-B (continued) **AUTHORIZING LEGISLATION**

See Section In Text	Date of Act	Project and Work Authorized	Documents
4.		**BLUE RIVER CHANNEL, KANSAS CITY, MO**	
	Dec 31, 1970	Adopted plan for Blue River Basin and authorized $40,000,000 for initiation and partial accomplishment.	H. Doc. 91-332, 91st Cong.
5.		**BRUSH CREEK, KANSAS CITY, MO**	
	Nov 17, 1986	Project for flood control on Brush Creek, a tributary of the Blue River, Kansas City, MO, authorized at estimated total cost of $16,100,000.	Sec. 401(a), Water Resources Development Act of 1986, P.L. 99-662
	Nov 28, 1990	Modified to authorize the Secretary of the Army to Construct the project substantially in accordance with the Post Authorization Change Report, dated April 1989 (revised January 1990), at a total cost of $26,200,000.	Water Resources Development Act of 1990, P.L. 101-640.
6.		**CLINTON LAKE, WAKARUSA RIVER, KS**	
	Oct 23, 1962	The project for the Kansas River, KS,NE and CO is authorized at an estimated cost of $88,070,000.	1962 Flood Control Act, H. Doc 578, 87th Cong. P.L. 87-874.
7.		**HARLAN COUNTY LAKE, REPUBLICAN, NE**	
	Jun 28, 1938	Adopted general comprehensive plan for Missouri River Basin and authorized $9 million for initiation and partial accomplishment.	Flood Control Committee Doc. 1, 75th Cong., P.L. 761.
	Aug 18, 1941	Modified general comprehensive plan to include Harlan County Dam and Reservoir on Republican River, NE, other supplemental flood control works on upper Republican River, and authorized $7 million additional expenditure.	H. Doc. 842, 76th Cong.; P.L. 77-228
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized $200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong., P.L. 534.
8.		**HILLSDALE LAKE, BIG BULL CREEK, KS**	
	Sep 3, 1954	The comprehensive plan for the Missouri River Basin, Approved by the Act of June 28, 1938, and as amended and supplemented is further modified to include the project for flood protection on the Kansas River and tributaries. It is further modified to include the project for flood protection on the Osage River and tributaries.	P.L. 780, 83rd Cong., H. Doc. 549, 81st Cong.
9.		**KANOPOLIS LAKE, SMOKY HILL RIVER, KS**	
	June 28, 1938	Adopted general comprehensive plan for Missouri River Basin and authorized $9 million for initiation and partial accomplishment.	Flood Control Committee Doc. 1, 7th Cong., P.L. 761.

TABLE 27-B (continued) **AUTHORIZING LEGISLATION**

See Section In Text	Date of Act	Project and Work Authorized	Documents
	Aug 18, 1941	Modified general comprehensive plan to include Harlan County Dam and Reservoir on Republican River, NE, other supplemental flood control works on upper Republican River, and authorized $7 million additional expenditure.	H. Doc. 842, 76th Cong.; P.L. 77-228
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized $200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong., P.L. 534.
10.		**LITTLE BLUE RIVER LAKES, MO**	
	Aug 13, 1968	Additional $38 million for prosecution of general comprehensive plan for Missouri River Basin	P.L. 90-483, H. Doc. 169, 90th Cong.
11.		**LONG BRANCH LAKE, LITTLE CHARITON RIVER, MO**	
	Oct 27, 1965	The project for flood protection on the Chariton and Little Chariton Rivers and tributaries, IA and MO, is authorized at an estimated cost of $9,167,000.	1965 Flood Control Act P.L. 89-298, H. Doc. 238, 89th Cong
12.		**MELVERN LAKE, MARAIS DES CYGNES (OSAGE) RIVER, KS**	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 for additional expenditure.	H. Docs. 642, 549 1/ and 561, 81st Cong.; 83rd Cong., P.L. 780
13.		**MILFORD LAKE, REPUBLICAN RIVER, KS**	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 for additional expenditure.	H. Doc. 549 1/, 81st Cong.; P.L. 780
14.		**MISSOURI RIVER LEVEE SYSTEM, IA, NE, KS AND MO**	
	Aug 18,1941	Levees along both sides of river from Sioux City to Kansas City.	H. Doc 821, 76th Cong. P.L. 77-228
	Dec 22, 1944	Extended project from Kansas City to the mouth and Provided for increased protection.	H. Doc 475 and S. Docs. 191 and 247, 78th Cong.
15.		**PERRY LAKE, DELAWARE RIVER, KS**	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 additional expenditure.	H. Docs. 642, 549 1/, and 561, 81st Cong.; 83rd Cong., P.L. 780
16.		**PICK-SLOAN MISSOURI BASIN PROGRAM (KANSAS CITY DISTRICT)**	
	Jun 28, 1938	Adopted general comprehensive plan for Missouri River Basin and authorized $9 million for initiation and partial accomplishment.	Flood Control Committee Doc. 1, 75th Cong.

TABLE 27-B (continued) **AUTHORIZING LEGISLATION**

See Section In Text	Date of Act	Project and Work Authorized	Documents
	Aug 18, 1941	Modified general comprehensive plan to include Harlan County Dam and Reservoir on Republican River, NE, other supplemental flood control works on upper Republican River, and authorized $7 million additional expenditure.	H. Doc. 842, 76th Cong.; P.L. 77-228
	Dec 22,1944	Expanded general comprehensive plan for Missouri River and authorized $200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong.
	Jul 24, 1946	Additional expenditure of $150 million for prosecution of General comprehensive plan for Missouri River Basin.	
	May 17, 1950	Additional expenditure of $250 million for prosecution of General comprehensive plan for Missouri River Basin.	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 for additional expenditure.	H. Docs. 642 and 549 1/ 81st Cong.; 83rd Cong., P.L. 780
	May 2, 1956	Modified general comprehensive plan for Missouri River River Basin by deletion of construction of Red Willow Dam and Reservoir, NE, and addition of construction of Wilson Dam and Reservoir, KS.	
	Jul 3, 1958	Expanded general comprehensive plan for Missouri River Basin and authorized $200 million additional expenditure.	H. Doc. 409, 84th Cong.
	Jul 14, 1960	Additional expenditure of $207 million for prosecution of General comprehensive plan for Missouri River Basin.	
	Dec 30, 1963	Additional expenditure of $80 million for prosecution of General comprehensive plan for Missouri River Basin and modified plan to include bank protection or rectification works below Garrison Dam.	
	Jun 18, 1965	Additional $116 million for prosecution of general comprehensive plan for Missouri River Basin.	
	May 12, 1967	Additional $20 million for prosecution of general comprehensive plan for Missouri River Basin.	
	Aug 13, 1968	Additional $38 million for prosecution of general comprehensive plan for Missouri River Basin.	
	Dec 24, 1970	Change comprehensive plan name to Pick-Sloan Missouri River Basin Program.	S. Doc. 91-1100, 91st Cong.
	Dec 23, 1971	Additional $101,000,000 for prosecution of general comprehensive plan for Pick-Sloan Missouri River Basin Program.	S. Doc. 92-222, 92nd Cong.
	Mar 7, 1974	Additional $72,000,000 for prosecution of general comprehensive plan for Pick-Sloan Missouri River Basin Program.	

TABLE 27-B (continued) **AUTHORIZING LEGISLATION**

See Section In Text	Date of Act	Project and Work Authorized	Documents
17.		**POMME DE TERRE LAKE, POMME DE TERRE RIVER, MO**	
	Jun 28, 1938	Adopted general comprehensive plan for Missouri River Basin and authorized $9 million for initiation and partial Accomplishment.	Flood Control Committee Doc. 1, 75th Cong., P.L. 761.
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized $200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong., P.L. 534.
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 additional expenditure.	H. Doc. 642, 549 1/, and 561, 81st Cong.; 83rd Cong., P.L. 780.
18.		**POMONA LAKE, ONE HUNDRED TEN MILE CREEK, KS**	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 additional expenditure.	H. Doc. 549 1/, 561, 81st Cong.; 83rd Cong., P.L. 780
19.		**RATHBUN LAKE, CHARITON RIVER, IA**	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 additional expenditure.	H. Doc. 561, 81st Cong., 83rd Cong., P.L. 780
20.		**SMITHVILLE LAKE, LITTLE PLATTE RIVER, MO**	
	Oct 27, 1965	The project for flood protection on the Platte River and tributaries, MO and IA, is authorized at an estimated cost of $26,889,000.	1965 Flood Control Act, P.L. 89-298 (H. Doc. 262, 89th Cong.)
21.		**TURKEY CREEK BASIN, KS & MO**	
	Aug 17, 1999	Project for flood control at the lower reaches of Turkey Creek Basin in Kansas City, KS and Kansas City, MO. Report of the Chief of Engineers dated April 21, 1999, at a total cost of $42,875,000, with an estimated Federal cost of $25,596,000 and an estimated non-Federal cost of $17,279,000.	Title I Section 101(a) Water Resources Development Act of 1999, P.L. 106-53
	Feb 20, 2003	Authorizing to construct the project in accordance with the plans and subject conditions, recommended in a final report of the Chief of Engineers completed by December 31, 2003 at a total project cost of $73,380,000 with estimated Federal cost of $45,304,000 and estimated non-Federal cost of $28,076,000	Title I Section 101(a) Water Resources Development Act of 2003, P.L. 108-7, Sec.v 123
22.		**TUTTLE CREEK LAKE, BIG BLUE RIVER, KS**	
	Jun 28, 1938	Adopted general comprehensive plan for Missouri River Basin and authorized $9 million for initiation and partial accomplishment.	Flood Control Committee Doc. 1, 75th Cong., P.L. 761.

TABLE 27-B (continued) **AUTHORIZING LEGISLATION**

See Section In Text	Date of Act	Project and Work Authorized	Documents
	Aug 18, 1941	Modified general comprehensive plan to include Harlan County Dam and Reservoir on Republican River, NE, other supplemental flood control works on upper Republican River, and authorized $7 million additional expenditure.	H. Doc. 842, 76th Cong.; P.L. 77-228
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized $200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 & 247, 78th Cong., P.L. 645
23.		**WILSON LAKE, SALINE RIVER, KS**	
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized $200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 & 247, 78th Cong., P.L. 534
	Jul 14, 1960 2/	Additional expenditure of $207 million for prosecution of general comprehensive plan for Missouri River Basin	S. Doc. 96, 86th Cong., P.L. 645
24.		**HARRY S. TRUMAN DAM AND RESERVOIR, OSAGE RIVER, MO**	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 additional expenditure.	H. Doc. 549 1/, 81st Cong.; 83rd Cong., P.L. 780
	Oct 23, 1962	The Kaysinger Bluff Reservoir is hereby modified in accordance with recommendations of the Chief of Engineers in H. Doc. 578, 87th Cong., at an estimated additional cost of $43,245,000; provided, that nothing in this Act shall be construed as authorizing the acquisition of additional lands for the establishment of a national wildlife refuge at the reservoir.	1962 Flood Control Act, H. Doc. 578, 87th Cong., P.L. 87-874
25.		**STOCKTON LAKE, SAC RIVER, MO**	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized $217,710,000 additional expenditure.	H. Doc. 549 1/, 81st Cong.; 83rd Cong., P.L. 780

1/ Contains latest published maps of Missouri River

2/ Report of Chief of Engineers on justification of Wilson Dam and Reservoir, submitted in compliance with Public Law 505, 84th Congress, published as Senate Document 96, 86th Congress, was approved July 14, 1960 (Public Law 645).

TABLE 27-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to September 2003	
			Construction	Operation and Maintenance
Fort Leavenworth Bridge removal	Complete	1965	270,393	--
Gasconade River, MO 1/2/	Complete	1931	139,003	85,077

1/ Improvement, adequate for existing needs. Project for maintenance only. Curtailment of project in H. Doc. 467, 69th Cong.

2/ Inactive portion of project deauthorized Jan 1, 1990 in accordance with Section 1001(b)(1) of Water Resources Development Act (WRDA) of 1986 (P.L. 99-662).

TABLE 27-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Operation and Maintenance
Abilene, KS	Completed	1961	1,099,350	--
Atchison, KS	Completed	1973	4,099,590	--
Barnard, KS 1/	Completed	--	127,860	--
Bartley, NE	Completed	1953	118,269	--
Bedford, East Fork, 102 River, IA 1/	Completed	1974	652,414	--
Big Blue River, Seward, NE 1/	Completed	--	126,887	--
Big Stranger Creek, KS 1/	Completed	--	337,131	--
Blue River Basin, Overland Park, KS				
Indian Creek Channel Modification 1/	Completed	1994	269,288 2/	--
Chariton-Little Chariton Basin, MO (1965 Act) 3/	Completed	1977	692,706 3/	--
Chariton River, MO (1944 Act)	Completed	1973	8,052,990	--
Elk Creek, Clyde, KS 1/	Completed	1984	989,015	--
Fairbury, Little Blue River, NE	Completed	1973	726,966	--
Frankfort, Black Vermillion River, KS	Completed	1966	1,271,025	--
Gypsum, Gypsum Creek, KS 1/	Completed	1984	2,782,793 4/	--
Indianola, NE	Completed	1950	67,275	--
Kansas City, Kansas River, KS (62 Mod)	Completed	1984	25,010,500 5/	--
Kansas Citys on MO and KS Rivers,				
MO and KS	Completed	1980	42,434,197 6/	--
Lawrence, Kansas River, KS	Completed	1985	8,773,488 7/	--
Little Blue River Channel Improvement,				
Little Blue River, MO	Completed	1989	25,530,083	--
Manhattan, Kansas River, KS	Completed	1967	2,488,585	--
Missouri River at New Haven, MO				
(Sec 212, 1950 Act)	Completed	--	139,883	--
Osawatomie, Pottawatomie Creek, KS	Completed	1973	2,036,624	--
Ottawa, Osage, (Marais des Cygnes) River, KS	Completed	1966	4,462,661	--
Perry Lake Area (Road Improvements), KS	Completed	1982	5,315,168	--
Rathbun Lake Fish Hatchery	Completed	1975	700,000	--
Salina, Smoky Hill River, KS	Completed	1967	3,878,668	--
Seward, NE 1/	Completed	--	126,887	--
Stonehouse Creek, Jefferson Co., KS 1/	Completed	1972	246,995	--
Topeka, Kansas River, KS	Completed	1974	21,174,593	--
Trimble Wildlife Area, Smithville Lake, MO	Completed	1990	1,570,000	--

1/ Authorized by the Chief of Engineers under Section 205, Public Law 858, 80th Congress, as amended.

2/ Required non-Federal contributions $129,680.

3/ Inactive units Little Chariton River (East and Middle Fork) and Mussell Fork were deauthorized Jan 1,1990 by Section 1001(b)(1) of the Water Resources Development Act of 1986, P.L. 99-662. Construction cost includes $481,106 cost of completed Shoal Creek Unit and $211,600 cost of deauthorized Little Chariton River and Mussell Fork units.

4/ Includes $130,841 non-Federal contributions.

5/ Inactive units Kansas Avenue Bridge and Approach, and Lower Argentine Units were deauthorized July 9, 1995 in accordance with Section 1001(b)(2) of WRDA of 1986, P.L. 99-662. Construction cost above includes $67,500 for deauthorized Bridge and Approach Unit; does not include $1,181,000 non-Federal Contributions.

6/ Includes $619,787 non-Federal contributions for work desired by local interests, but not required under the project. The project as a whole is complete except for Turkey Creek facilities in Central Industrial District Unit.

7/ Includes $153,377 non-Federal contributions.

TABLE 27-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date and Authority	Federal Funds Expended	Contributed Funds Expended	Date Deauthorized
Arlington Lake, MO	1948	Flood Control Act approved June 28, 1938, as modified by Flood Control Act approved August 18, 1941, and expanded by Flood Control Act approved December 22, 1944	$8,651	--	Aug 5, 1977
Beatrice, Big Blue River, NE	1965	Flood Control Act approved September 3, 1954	16,317	--	May 6, 1981
Braymer Lake, Shoal Creek, MO	1966	1965 Flood Control Act P.L. 89-298, (H. Doc. 241, 89th Cong., 1st sess.)	--	--	Jul 16, 2002
Brookfield Lake, Yellow Creek, MO	1976	1965 Flood Control Act P.L. 89-298, (H. Doc. 241, 89th Cong., 1st sess.)	451,400		Jul 16, 2002
Chariton-Little Chariton Basin, MO (1965 Act)-- Inactive Units Little Chariton River (East and Middle Fork) and Mussell Fork Units only 1/	1977	1965 Flood Control Act P.L. 89-298 (H. Doc. 238, 89th Cong., 1st sess.)	211,600	--	Jan 1, 1990
Dry Fork and East Fork Lakes, Fishing River, MO	1974	1965 Flood Control Act P.L. 89-298 (H. Doc. 281, 89th Cong., 1st sess.)	51,989	--	Jan 1, 1990
East Muddy Creek, MO	1966	Authorized by 1965 Flood Control Act P.L. 89-298	--	--	Jul 16, 2002
Fort Scott Lake	1976	1954 Flood Control Act (H. Doc. 549, 81st Cong. 2nd Sess)	757,500	--	Apr 5, 1999
Garnett Lake, Pottawatomie Creek, KS	1973	Flood Control Act approved September 3, 1954	71,466	--	Nov 17, 1986
Gasconade River Navigation, MO	1931	Curtailment of project in H. Doc. 467, 69th Cong. 1928	2/	--	Jan 1, 1990
Grand River, MO					
Lower Grand River (1965 Act)	1966	1965 Flood Control Act P.L. 89-298 (H. Doc. 241, 89th Cong., 1st sess.)		--	Jul 16, 2002
Upper Grand River 1965 Act	1966	1965 Flood Control Act P.L. 89-298 (H. Doc. 241, 89th Cong., 1st sess.)	--	--	Jul 16, 2002
Grove Lake, Soldier Creek, KS	1977	1962 Flood Control Act (S. Doc. 122, 87th Cong. 2d sess.)	1,754,019	--	Nov 17, 1986
Hackleman Corners Lake, Cedar Creek, MO	--	Authorized by Flood Control Act approved September 3, 1954	--	--	Aug 5, 1977
Harry S Truman Dam and Reservoir, MO (Downstream Fish and Wildlife Mitigation)	--				Jul 16, 2002
Hays, Big Creek, KS 3/	1974	1965 Flood Control Act P.L. 89-298 (S. Doc. 22, 89th Cong., 1st sess.)	499,200	--	Jan 18, 1978

TABLE 27-G (continued) DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date and Authority	Federal Funds Expended	Contributed Funds Expended	Date Deauthorized
Indian Lake, Blue River, KS	1976	1970 Flood Control Act (H. Doc. 332 91st Cong., 2d sess.)	127,297	--	Nov 17, 1986
Kansas City, Kansas River, KS (62) Mod)--Inactive Units Kansas Avenue Bridge Approach, and Lower Argentine Units Only	1984	1962 Flood Control Act, S. Doc. 122, 87th Cong., P.L. 87-874	67,500 4/	--	Jul 9, 1995
Kansas River Navigation	1980	1965 Flood Control Act, P.L. 89-298, Sec. 201	259,900	--	Nov 17, 1986
Lawrence, Kansas River, KS, South Lawrence Unit	1981	1954 Flood Control Act (H. Doc. 642, 81 st Cong., 2d sess.)	--	--	Apr 5, 1999
Marysville, KS	--	Flood Control Act of September 3, 1954	133,682	--	Jan 1967
Melvern Lake and Pomona Lake (Road Improvements) KS (1974 Act)	--	Water Resources Development Act of 1974, Section 17	--	--	Jan 1, 1990
Mercer Lake, Weldon River, MO	1976	1965 Flood Control Act, P.L. 89-298 (H. Doc. 241, 89th Cong., 1st sess)	432,245		Jul 16, 2002
Merriam, Turkey Creek, KS	1970	Flood Control Act approved Septem-ber 3, 1954	39,708	--	Nov 27, 1973
Mill Lake, Blue River, MO	1971	1970 Flood Control Act (H. Doc. 332, 91st Cong., 2d sess.)	--	--	Nov 17, 1986
Missouri River Levee System, IA, KS, MO, and NE Deauthorized by Sec. 1002 Water Resources Development Act of 1968, P.L. 99-662, Section 1002: Units R402; R393-395; and R414	--	Flood Control Act of August 18, 1941, P.L. 228, 77th Cong.	57,500	--	Nov 17, 1986
Deauthorized in accordance with WRDA Section 1001(b)(1): Units L36; R42; L51; R55-59-61; L68-92; R70; L78; R87; L94; L99; L103; R104; R107; R112; L117; L121; L124; L129; L134; L137-139; L145; R150; L154;	--	Flood Control Act of August 18, 1941, P.L. 228, 77th Cong.	1,631,700	--	Jan 1, 1990

TABLE 27-G (continued) DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date and Authority	Federal Funds Expended	Contributed Funds Expended	Date Deauthorized
L157; R161; L164; R169; L175; R179-184; L191-196; L205; L217; R226; R240; R251; L256; R259; L263-270 5/; R272; R284; R302; R336; L353; L357; R361; L362; L392; L419-426; L435; R512-513, Section III					
L330-345;L319-325; L294;L504-512-519;R-331;R-328;L-100					
Onaga Lake, Vermillion Creek, KS		Flood Control Act of 1962, October 23, 1962 (P.L. 87-874)	2,178,261	--	Nov 17, 1986
Osage River Navigation, MO, lock and dam	1952	Original lock and dam authorized Mar 3, 1899; improvement authorized in 1928; placed in standby status Jul 1952 and operation & maintenance discontinued.	658,076 6/	--	Jan 1, 1990
Pattonsburg Lake, Grand River, MO					
1965 Act	1976	1965 Flood Control Act, P.L. 89-298	--	--	Jul 16, 2002
I-35 Highway Relocation	1976	(H. Doc. 241, 89th Cong., 1st sess)	393,623	--	Jan 1, 1990
Town Relocation	1976		91,929	--	Jan 1, 1990
Pioneer Lake, KS	1952	Flood Control Act approved June 28, 1938, as modified by Flood Control Act of August 18, 1941, and expanded by Flood Control Act approved December 22, 1944	95,692	--	Aug 5, 1977
Platte River, MO Channel Improvement	1973	1965 Flood Control Act, P.L. 89-298 (H. Doc. 262, 89th Cong., 1st sess)	222,193		Jul 16, 2002
Pomme de Terre Lake (Power Addition), MO	1954 1974	Flood Control Act of 1954 (H. Doc. 549, 81st Cong., 2d sess.)	--	--	Nov 17, 1986
Richland Lake, MO	1948	Flood Control Act approved June 28, 1938, as modified by Flood Control Act approved August 18, 1941, and expanded by Flood Control Act approved December 2, 1944	8,548	--	Aug 5, 1977
Smithville Channel, Little Platte River, MO	1973	1965 Flood Control Act, P.L. 89-298 (H. Doc. 262, 89th Cong., 1st sess)	6,896		Jul 16, 2002
Tomahawk Lake, Blue River, KS	1976	1970 Flood Control Act (H. Doc. 332, 91st Cong., 2d sess.)	77,189	--	Nov 17, 1986
Trenton Lake, Thompson River, MO	1966	1965 Flood Control Act, P.L. 89-298 (H. Doc. 241, 89th Cong., 1st sess)	--	--	Jul 16, 2002

TABLE 27-G (continued) DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date and Authority	Federal Funds Expended	Contributed Funds Expended	Date Deauthorized
Tuttle Creek Lake, KS (Road Improvement--1974 Mod.)	1977	Sec. 18 of Water Resources Development Act of 1974	3,000	--	Nov 17, 1986
Tuttle Creek Lake, KS Road and Bridge (1976 Act)	--	Water Resources Development Act of 1976, Section 189, P.L. 94-587	--	--	Jan 1, 1990
Wolf-Coffee Lake, Blue River, KS	1976	1970 Flood Control Act (H. Doc. 332, 91st Cong., 2d sess.)	1,095,020	--	Nov 17, 1986

1/ For completed Shoal Creek unit of Chariton-Little Chariton Basin, MO, see Table 27-E.

2/ For completed project see Table 27-C. Deauthorized under Sec. 1001(b)(1) WRDA of 1986, P.L. 99-662.

3/ Hays, Lincoln Draw, KS, Section 205 feasibility study terminated in March 1991 due to lack of identifiable project that would meet dam safety concerns.

4/ For completed Argentine, Amourdale, and Central Industrial Units of project, see Table 27-E.

5/ Incorrectly shown as R263-270 in the deauthorization act.

6/ Operation and maintenance costs $850,495. Deauthorized under Sec. 1001(b)(1) of WRDA, P.L. 99-662.

MISSOURI RIVER LEVEE SYSTEM

TABLE 27-H **(See Section 14 of Text)**

Unit	Miles of Levee	Status
R512-513 Richardson Co. D.D. No. 7	19.1	Complete--1958
R500 Iowa Point D. D. No. 4	4.1	Complete--1954
Kimsey Holly Creek	4.4	Complete--1970
L497 Forest City L. D.	16.0	Complete--1962
L488 Holt Co. D. D. No. 7	11.5	Complete--1955
R482 Burr Oak D. D. No. 3	8.2	Complete--1954
L476 Amazonia L. D.	10.8	Complete--1956
R460-471 Elwood-Gladden L. D.	13.8	Complete--1968
L455 S. St. Joseph L. D.	15.6	Complete--1967
L443-448 Halls L. D.	17.3	Complete--1957
R440 Atchison & Doniphan Co. D. D.	10.7	Complete--1959
L408 Farley-Beverly D. D.	12.2	Complete (Levee raise modification)--1972
L400 Waldron L. D.	7.6	Complete--1957
L385 Riverside-Quindaro D. D.	6.5	Construction underway
R351 Atherton L. D.	15.9	Complete--1966
L330-345 Orrick L. D.	43.4	Inactive
L319-325 Henrietta-Crooked River D. D.	35.0	Inactive
L246 Brunswick-Dalton D. D.	20.0	Complete--1983
L142	6.0	Planning underway
Remaining units		Detailed planning not initiated

KANSAS CITY DISTRICT PROJECTS INCLUDED IN PICK-SLOAN MISSOURI BASIN PROGRAM

TABLE 27-I **(See Section 16 of Text)**

Project	Status [1/]	Federal Cost [2/]	Non-Federal Cost [3/]	Non-Federal Reimbursable [4/]
Abilene, Smoky Hill River, KS	C	$1,099,350	$287,000	
Bartley, Republican River, NE	C	118,269	9,500	
Fort Scott Lake, Marmaton River, KS	D	71,186,000	19,314,000	$44,800,000 [5/]
Garnett Lake, Pottawatomie Creek, KS	D	71,466	--	
Harlan County Lake, Republican River, NE	C	48,129,549	--	
Harry S. Truman Dam and Reservoir, Osage River, MO	C	550,908,965	--	138,385,000 [6/]
Hillsdale Lake, Big Bull Creek, KS	C	64,161,400	--	21,145,338 [5/]
Indianola, Republican River, NE	C	67,275	7,592	
Kanopolis Lake, Smoky Hill River, KS	C	12,577,227	--	
Lawrence, Kansas River, KS	C	8,620,111	2,130,000	
Manhattan, Kansas River, KS	C	2,488,585	265,000	
Melvern Lake, Osage (Marais des Cygnes) River, KS	C	37,436,530	--	7,131,834 [7/]
Melvern Lake and Pomona Lake (Road Improvement), KS (1974 Authorization)	D	--	--	
Milford Lake, Republican River, KS	C	49,566,492	--	12,162,134
Missouri River Levee System, Rulo to the Mouth 8/	A	93,553,000	37,216,000	
Osawatomie, Osage (Marais des Cygnes) River, KS	C	2,036,624	348,300	
Ottawa, Osage (Marais des Cygnes) River, KS	C	4,462,661	876,000	
Perry Lake, Delaware River, KS	C	49,095,918	--	8,551,805 5/
Pomme de Terre Lake, Pomme de Terre River, MO	C	17,365,453	--	
Pomona Lake, Osage River Basin, KS	C	14,003,238	--	862,923 5/
Salina, Smoky Hill River, KS	C	3,878,668	1,960,000	
Stockton Lake, Sac River, MO	C	79,975,357	--	24,206,593 9/
Topeka, Kansas River, KS	C	21,174,593	10,383,492	
Tuttle Creek Lake, Big Blue River, KS	C	80,584,079	--	2,333,916 5/
Tuttle Creek Lake, KS--Road and Bridge (1976 Act)	D	--	--	
Tuttle Creek Lake (Road Improvement), KS (1974 Modification)	D	3,000	--	
Wilson Lake, Saline River, KS	C	20,463,367	--	

1/ Status: A = Active; C = Completed; D = Deauthorized; I = Inactive.

2/ Actual appropriations for completed and deauthorized projects; estimated appropriation requirements for active and inactive projects.

3/ Estimated cost during construction.

4/ Future reimbursement of initial Federal cost.

5/ Estimated reimbursement costs allocated to water supply.

6/ Estimated reimbursement costs allocated to power.

7/ In accordance with the Memorandum of Understanding between the State of Kansas and the Dept. of the Army dated 1985, payment in full of $7,131,834 for 50,000 acre-feet of water supply was made in March 1995.

8/ Active portion of project. Currently estimated cost (2001): Deferred portion of project--$46,753,000 Federal and $4,336,000 non-Federal; Inactive portion of project--$104,791,000 Federal and $11,296,000 non-Federal. Actual cost of deauthorized units (1990) is $1,689,200 Federal.

9/ Includes $22,116,864 estimated reimbursement costs allocated to power, and $2,089,729 estimated reimbursement costs allocated to water supply.

INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

TABLE 27-J (See Section 25 of Text)

Project	Month Inspected
Missouri River Main Stem	
R482, R500, R440 and Atchison, KS	Apr-2003
L497, L488, L476	Apr-2003
Kimsey Holley Creek, MO	Apr-2003
Birmingham, MO	May-2003
Fairfax Jersey Creek (KCK)	Apr-2003
North Kansas City, MO (Lower Section	May-2003
L408, L400, R471-460 and R351-I	May-2003
KCMO Units - CID (MO), East Bottoms, NKC Airport	Jun-2003
L448-443	Aug-2003
L455	May-2003
L246, Lower Chariton, MO and New Haven, MO	Aug-2003
R512-513	Oct-2003
Kansas River	
North Topeka, Soldier Creek	Apr-2003
South Topeka Units-Oakland, South Topeka, Auburndalr and Waterworks Unit	Apr-2003
Manhattan, KS	Apr-2003
Ft Riley, KS	Oct-2003
Lawrence, KS	Sep-2003
Kaw Valley--Argentine, Armourdale, Lower Fairfax, CID (KS) Lower Fairfax (all KCK)	Oct-2003
Osage River (MO) Marais des Cygnes (KS)	
Ottawa, KS	Jun-2003
Osawatomie, KS	Jun-2003
Smokey Hill, Saline, Solomon Rivers & Tributaries (KS)	
Abilene, KS	May-2003
Salina, KS	Sep-2003
Barnard, KS	Sep-2003
Gypsum, KS	Sep-2003
Republican River	
Clyde, KS	May-2003
Indianola, NE	Sep-2003
Big and Little Blue Rivers (KS & NE)	
Frankfort, KS	Apr-2003
Fairbury, NE, Seward, NE	Sep-2003
Blue River (MO)	
GSA Complex (KCMO)	May-2003
Blue River Channel & Brush Creek (KCMO)	Jun-2003
Little Blue River Channel, Jackson County, MO	
R351-II	May-2003
Little Blue River Channel, Jackson, MO	Jun-2003
Lake City AAP, MO	Jun-2003

INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

TABLE 27-J (continued) **(See Section 25 of Text)**

Project	Month Inspected
Miscellaneous – Improved Channels	
Bedford, IA	May-2003
Shoal Creek, MO	Aug-2003
Macon-Adair Project, Kirksville, MO	Aug-2003
Stonehouse Creek, KS and Stranger Creek, KS	Oct-2003

TABLE 27-K **WORK UNDER SPECIAL AUTHORITIES**
(See Section 28 of Text)

Study	Status 1/	Fiscal Year Cost
Flood Control Activities Pursuant to Section 205, 1948 Flood Control Act Public Law 858, 80th Congress, June 30, 1948, as Amended		
Section 205 Coordination Account	--	$16,944
Blacksnake Creek, St. Joseph—170801	F	49,513
Brush Creek, Plaza to State Line, KS—172425	F	6,366
Eureka Creek, Manhattan, KS --178482	I	48,178
Birmingham Wastewater Trtmnt Plt--182608	F	1,945
Wears Creek, MO--165565	F	356
St. Joseph, MO--160262	F	15
Parkville, MO --160264	F	33
TOTAL ALL SECTION 205 ACTIVITIES		$123,350
Emergency Streambank Protection—Sec 14, 1946 Flood Control Act Public Law 526, 79th Congress, July 24, 1946, as Amended		
Section 14 Coordination Account	--	$ 30,080
Argosy Road Bridge, Riverside, MO	I	7,959
Big Nemaha River Bridge #3434P, NE	D	14,186
Blue River, KCMO, Kansas City, MO	D	11,633
Delaware River Water Intake, Kickapoo Res, KS	C	-1,991
Flat Creek, MO	D	363
Grand River Salt Creek Bridge	D	45
Hinkson Creek, Columbia Sewer Main, Mo	D	83
Kansas River, Eudora Bend Bridge, KS	C	493,299
Middle Fork, Grand US 169, MO	C	147,576
Petite Saline Creek, MO	D	51,695
Rush Creek, Parkville, MO	D	29,832
Sandy Hill Bridge, Medicine Creek	D	10,397
South Fork Clear Creek, Route FF, Maryville	D	40,885
Stranger Creek at K32, KS	D	11,013
Thompson River, Trenton, MO, Rt 6	D	18,464
West Fork Medicine Creek, Galt Bridge	D	38,065
TOTAL ALL SECTION 14 ACTIVITIES		$903,587

TABLE 27-K (continued)

Study	Status 1/	Fiscal Year Cost
Project Modifications for Improvement of Environment Section 1135, Water Resources Development Act of 1986, Public Law 662, 99th Congress, November 17, 1986		
Coordination Account Funds	--	$ 24,634
Blue Valley, Jackson County, MO	I	11,874
Brush Creek, K.C., MO	I	22,607
Fairbury Fish Pass, NE	F	90,274
Honey Creek Wetlands, (Greenville) IA	I	123,388
Kansas River Riverfront, Mo	F	229,533
Long Branch Lake Ecosystem Rest.	F	635
Long Branch Lake, St Park, (Bloomington) MO	I	7,625
Milford Hatchery Wetlands	I	1,422
Milford Lake Habitat Restoration, KS	C	928,520
Rathbun Lake Habitat Restoration, KS	P	10,772
Smithville Aquatic Plantings	I	63,346
Stumps Wetlands Kanopolis Lake Proj	I	60,730
TOTAL ALL SECTION 1135 ACTIVITIES		$1,575,360
Acquatic Ecosystem Restoration Section 206, Water Resources Development Act of 1996, Public Law 303, 104th Congress, October 12, 1996		
Coordination Account Funds	--	$ 24,811
Preliminary Restoration Funds	I	808
Big Nemaha Basin Wetland, Johnson Cty, KS	I	9,076
Chariton River/Rathbun Lake Watershed	D	341,118
David City Wetlands, NE	D	676
Lake Nemaha Wetlands, KS	C	17,338
Monkey Mountain Wetlands, Jackson Cty, MO	I	3,995
Rainwater Basin, MO	D	298
Straightwater Marsh Wetland Habitat	C	27,990
TOTAL SECTION 206 ACTIVITIES		$ 426,110

1/ Status: I = Initial; D = Planning and Design Analysis; F = Feasibility; C = Construction; P = Plans and Specs
O = Operational

TABLE 27-K (continued)

Emergency Response Activities
(See Section 29 of Text)
Emergency Flood Control Activities – Repair
Flood Fighting, and Rescue Work –
Public Law 99, 84th Congress
And Antecedent Legislation

Activity	Approp 96X3125 FY 03 Expenditures	Total by Category
FLOOD CONTROL AND COASTAL EMERGENCIES		
Disaster Preparedness Program – 100		
Planning Activities	$438,779	
Training and Exercise	0	
Facilities	15,746	
Total Disaster Preparedness Program	$454,525	
Emergency Operations--200		
Response Operations—210	17,113	
Acquisition of Supplies & Equipment	0	
Operational Deployment	0	
Total Emergency Operations	$17,113	
Rehabilitation--300		
Federal Flood Control Works	$229,543	
Non-Federal Flood Control Works	0	
Field Investigation	0	
Inspections	114,312	
Total Rehabilitation	$343,855	
Emergency Water Supplies and Draught Assistance--400		
Field Investigations		
Total	$0	
Hazard Mitigation--600		
Hazard Mitigation Team Activities	$0	
FLOOD CONTROL AND COASTAL EMERGENCIES TOTAL FEDERAL NON-REIMBURSEABLE ACTIVITIES		$815,493
	Rivers and Harbors Contributed Funds Approp 96X8862 Expenditures	
SPONSOR'S CONTRIBUTED FUNDS		
Maintenance—300	$176,866	$176,866
TOTAL ALL EMERGENCY RESPONSE ACTIVITIES EXPENDITURES		**$992,359**

TABLE 27-L **ACTIVE GENERAL INVESTIGATIONS**
(See Section 30 of Text)

Item and PWI No.	Federal Cost FY 03	Total by Category
SURVEYS (Category 100)		
Flood Damage Prevention Studies (120)		
Kansas Citys, MO & KS--13268	458,951	
Manhattan, KS--013394	32,977	
Swope Park Industrial, KC, MO—012821	1,300	
Topeka, KS—081396	55,923	
Upper Turkey Creek, KS—(Recon & Feas) 014411	304,247	
Wears Creek, Jefferson City – 081377	34,655	
Subtotal	$888,053	
Comprehensive Studies (150)		
Missouri & Mississippi Rivers Enhancement--010642	$76,933	
Review of Authorized Projects (160)		
MRLS, Units L455 and R460-471—013267	$125,066	
Miscellaneous Activities (170)		
Special Investigations--017250	$61,053	
Interagency Water Resources Development--014713	3,990	
North American Waterfowl Mgmt--053904	2,694	
Subtotal	$67,737	
Coordination with Other Agencies and Non-Federal Interests (180)		
Coop with Other Water Resources Agencies (181)--053907	$4,483	
Planning Assistance to States (186)	145,307	
Subtotal	$149,790	
TOTAL SURVEYS (Category 100)		**$1,307,579**
COLLECTION AND STUDY OF BASIC DATA (Category 200)		
Flood Plain Management Services (250)		
Flood Plain Management Service Unit--082030	$41,759	
Technical Services--082040	23,101	
Quick Responses--082045	4,987	
Flood Plains Management Study--082500	1,227	
Special Studies		
SS Platte County, Approx Study, MO—083944	11,030	
SS Union County, Approx Study, IA—083945	28,598	
Subtotal	$110,702	
Hydrologic Studies (260)		
General Hydrology Studies--053820	$11,993	

TABLE 27-L (continued) ACTIVE GENERAL INVESTIGATIONS
(See Section 30 of Text)

Item and PWI No.	Federal Cost FY 03	Total by Category
TOTAL COLLECTION AND STUDY OF BASIC DATA (Category 200)		**$122,695**
PRECONSTRUCTION ENGINEERING AND DESIGN		
Flood Control Projects (Project Not Fully Authorized) (Category 450)		
Swope Park Industrial KC, MO--012821	$85,809	
Flood Control Projects (Fully Authorized Project) (Category 600)		
Turkey Creek KS & MO Cost Sharing	$272,808	
TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN		**$358,617**
GRAND TOTAL GENERAL INVESTIGATIONS		$1,788,891

TABLE 27-M

REGULATORY PROGRAM
(See Section 34 of Text)

Item and PWI Number	Federal cost FY 02
PERMIT EVALUATION (100)	
REG--Permit Evaluation--008204	$2,477,836
ENFORCEMENT (200)	
REG--Enforcement--008205	554,796
ENVIRONMENTAL IMPACT STATEMENT (500)	
--088870	0
ADMINISTRATIVE APPEALS (600)	
--013579	7,354
GRAND TOTAL REGULATORY PROGRAM	$3,039,986

PORTLAND, OR DISTRICT

The territorial limits of the Portland District include the Pacific coastal drainage area of the State of Oregon, the portions of the States of Oregon and Washington which lie within the Columbia River watershed downstream of the Umatilla Bridge below McNary Dam, and south central Oregon west of the Malheur River and the Steens Mountains, but not including that part which drains into the Klamath Lake and River.

Improvements

Navigation

1. CHETCO RIVER, OR

Location. Rises in Siskiyou Mountains of Coast Range at an elevation of 4,000 feet, flows for about 51 miles in a circuitous route, and empties into Pacific Ocean at Brookings, OR, 300 miles south of entrance to Columbia River and 345 miles north of San Francisco Bay. (See National Oceanic and Atmospheric Administration Charts 18600 and 18203).

Existing project. Provides for two jetties at the mouth of the river. Modification of 1965 authorized an entrance channel 120 feet wide by 14 feet deep; a barge turning basin about 250 feet wide, 650 feet long, and 14 feet deep; and a small boat access channel 100 feet wide by 12 feet deep. Also authorized was a 450-foot extension of north jetty with an increase in elevation of existing portion and a protective dike about 1,800 feet long with a top elevation of 18 feet. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is 6.9 feet and extreme is about 12 feet.

Construction of jetties was completed December 1957. Removal of rock pinnacles and an abandoned bridge structure was accomplished in June 1959. Under authorized modification of October 1965, two contracts were completed. Construction of entrance channel and extension of north jetty was completed in July 1969. Construction of a protective dike, turning basin and small boat access channel was completed in March 1970. The authorization was modified by WRDA 92 to "direct the Secretary of the Army to assume maintenance of the approximately 200-foot long access channel to the south commercial boat basin consistent with authorized project depths". This channel will be maintained in lieu of the small boat access channel.

Local cooperation. Fully complied with.

Terminal facilities. The Port of Brookings has developed two large boat basins, one for commercial fishing boats and the other for sport boats, and a public boat-launching ramp. There are four fish receiving docks and a sea-going barge dock for lumber loading and storage. There is also a privately owned marina and a Coast Guard Station.

Operations during fiscal year. Maintenance: the U.S. hopper dredge Yaquina removed a total of 35,770 cubic yards of material.

2. COLUMBIA AND LOWER WILLAMETTE RIVERS BELOW VANCOUVER, WA AND PORTLAND, OR

Location. The Columbia River rises in British Columbia, through which it flows for 425 miles. It enters the United States in northeastern Washington, and empties into the Pacific Ocean 645 miles north of San Francisco Bay and 160 miles south of Strait of Juan DeFuca. Total length of river is 1,210 miles. (See NOAA Charts 18520, 18521, 18522, 18523, 18524, 18526, and 18531; also Geological Survey Map of Washington.) Willamette River rises in Cascade Range in western Oregon, flows northerly, and empties into Columbia River about 100 miles from the sea. Its length from source of Middle Fork is about 294 miles. Project embraces 103.5 miles of Columbia River below Vancouver, WA, and 14.6 miles of Willamette River below Portland, OR. (See NOAA Chart 18526 and Geological Survey Map, State of Oregon.)

Existing project. Provides for a channel 35 feet deep and 500 feet wide from River Mile 106.5 to 105.5, the distance between existing highway and railroad bridges; a channel 40 feet deep and 600 feet wide from Vancouver, WA, River Mile 105.5 to mouth of Columbia River, River Mile 3; a turning basin at Vancouver, WA, 40 feet deep, 800 feet wide, and about 5,000 feet long; a turning basin at Longview, WA, 40 feet deep, average width of 1,200 feet, and about 6,000 feet long; and a channel 40 feet deep in the Willamette River with varying widths of 600 to 1,900 feet from the mouth (River Mile 0) to Broadway Bridge (River Mile 11.6) which encompasses Portland Harbor area, subject to provisions that channel from mouth of Willamette River to turning basin at Vancouver, WA, be limited to 500 feet in width until need for additional width is demonstrated by developed traffic. Existing project also provides for auxiliary channels 10 feet deep and 300 feet wide near Cathlamet, WA; 30 feet deep and 300 feet wide in St. Helens, (Oregon); and 30 feet deep and 500 feet wide connecting upper end of St. Helens Channel with main ship channel of Columbia; 24 feet deep and 200 feet wide along frontage of town of Rainier, OR, extended to its upper and lower ends to deep water in Columbia River, 8 feet deep and 150 feet wide from this depth in Columbia River through old mouth of Cowlitz River to a point about 3,000 feet upstream from present terminus of harbor line; a channel from Longview Port dock downstream along pier head line and past Weyerhaeuser Timber Co. plant at Longview to a connection with main ship channel below Mount Coffin, the downstream 2,400 feet of this channel to be 30 feet deep and 300 feet wide and remainder to be 28 feet deep and 250 feet wide; construction of a small boat mooring basin at Astoria, OR, to include a sheet pile, sand-filled breakwater about 2,400 feet long with a 30-foot roadway along its full length, and steel pile shore wings totaling about 1,460 feet long and for stone-and-pile dikes and revetments. Plane of reference in estuary from mouth of Harrington Point is mean lower low water; thence to Portland and Vancouver, adopted low water. Tidal range between mean lower low water and mean higher high water at mouth of Columbia is about 8 feet, and at Portland and Vancouver, about 3 feet at low stage of rivers. Extreme tidal ranges are about 13 and 3 feet, respectively. Annual freshets have little effect on stage of tide at mouth of Columbia; at Portland and Vancouver, they average about 12 feet, while highest know reached a stage of 33 feet above water at Portland.

Work on the 40-foot channel in Columbia River from Portland, OR, and Vancouver, WA, to the sea was completed in 1976. Auxiliary channel in vicinity of Longview was completed in 1949, and improvement of mouth of Cowlitz River and small boat mooring basin at Astoria were completed in 1950. Project depths are maintained all year except for the period immediately following the annual freshet in May-June when shoaling occurs at several locations. Timing of vessel movement with tidal fluctuations permits maximum draft conditions. In Columbia and Willamette Rivers between mouth and Broadway Bridge at Portland a depth of 40 feet at low tide and 42 feet at high tide is practicable all year. In Columbia River between mouth of Willamette River and Vancouver, WA, depths of 40 and 42 feet at low and high tide, respectively, are practicable all year. (For details relating to previous project, see pages 1995 and 1998 of Annual Report for 1915 and page 1746 of Annual Report for 1938.)

Local cooperation. Fully complied with. Requirements are described in full on page 37-3 of FY 1981 Annual Report.

Terminal facilities. At Portland, OR, there are six Port of Portland terminals consisting of 43 berths equipped to handle general cargo, bulk cargo, lumber, automobiles, lift-on-lift-off and roll-on-roll-off containers, and break-bulk vessels. The Port of Portland owns and operates a major ship repair yard, which includes the west coast's largest, and the world's third largest, floating dry dock. Also available in the harbor area are privately operated facilities for receiving, storing and out loading petroleum, wood chips, grain, logs, sand and gravel, cement, and steel products.

At Astoria, OR, there is a terminal with facilities for receiving and handling all types of general cargo.

At Vancouver, WA, there are municipal facilities capable of berthing five ships simultaneously. Each berth is completely outfitted with mechanical and lift facilities for receiving and handling all types of cargo. The port has a low dock to handle roll-on-roll-off and side-port discharging vessels. The grain terminal has a storage capacity of 4,500,000 bushels.

Port of Longview has a public terminal on Columbia River and a privately owned grain elevator with a capacity of 6,900,000 bushels. This port also has a heavy lift facility, with a capacity of 600 tons.

Port of Kalama has two berthing areas, one port owned and one private.

At other locations on Columbia River between Portland and Columbia River entrance there are sufficient private facilities to accommodate river vessels and fishing craft. These facilities, with planned extensions, are considered adequate for existing commerce. (For details, see Port Series Nos. 33 and 34, Corps of Engineers, published in 1974 and 1975 respectively.)

Operations during fiscal year. Maintenance: A total of 6.5 million cubic yards of material was removed. The U.S. hopper dredge Essayons removed

2.9 million cubic yards, the U.S. hopper dredge Yaquina removed 595,461 cubic yards, the pipeline dredge Oregon removed about 2.9 million cubic yards, and the contract hopper dredge Sugar Island removed 99,864 cubic yards.

3. COLUMBIA RIVER AT BAKER BAY, WA

Location. Baker Bay is a shallow body of water about 15 square miles in extent on the north side of Columbia River Estuary near its mouth. The bay is separated from the river by Sand Island, a low-lying sand bar only a few feet above high tide level. (See NOAA Chart 18521.)

Existing project. A mooring basin 10 and 12 feet deep, about 20 acres in extent with protecting breakwaters; and a west channel 16 feet deep and 200 feet wide for the first 2,000 feet, then 16 feet deep and 150 feet wide to the boat basin; a channel east of Sand Island to Port of Ilwaco, a distance of about 4 miles. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is about 8 feet, and extreme about 13 feet.

Channel extending through easterly passage of Sand Island was completed in 1934. This portion of authorized project is not passable and is not maintained at the present time. Dredging west channel to 8 feet was accomplished September 1948. Deepening west channel to 10 feet, and boat basin and breakwater construction at Ilwaco, WA, was finished December 1957, and again, deepening of the west channel to 16 feet completed in August 1985 under Section 107, finished the project.

Local cooperation. Fully complied with.

Terminal facilities. Wharves, floats, ramps, and berths, for fishing craft, barges and towboats. Small-boat basin and protecting breakwater provides moorings for numerous fishing and recreational craft all year. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: A total of 101,000 cubic yards of material was removed from the project.

4. COLUMBIA RIVER BETWEEN CHINOOK, WA, AND HEAD OF SAND ISLAND

Location. At easterly end of Baker Bay, lying on north side of Columbia River near mouth. (See Coast and Geodetic Survey Chart 6151.)

Existing Project. Channel 10 feet deep and 150 feet wide, extending from head of Sand Island to Chinook; a turning and mooring basin at upper end of channel, 10 feet deep, 660 feet long, and ranging from 275 to 500 feet wide; reconstruction of easterly 393 feet of existing breakwater; and extension of existing breakwater easterly and thence northerly to connect with shore in vicinity of Portland Street, Chinook, WA. Tidal range between mean lower low water and mean higher high water is about 8 feet and extreme about 13 feet.

Project as originally authorized was completed in 1940. The 10-foot channel depth modification was accomplished September 1958. Rehabilitation of existing breakwater was completed September 1962.

Local cooperation. Fully complied with.

Terminal facilities. Wharves, floats, ramps, and berths, for fishing craft, barges and towboats. Small-boat basin and protecting breakwater provides moorings for numerous fishing and recreational craft all year. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: A total of 144,000 cubic yards of material was removed from the project.

5. COLUMBIA RIVER AT THE MOUTH, OR AND WA

Location. The Columbia River entrance is 645 miles north of San Francisco Bay. Project is about 120 miles downstream of Portland, OR and Vancouver, WA. For description of Columbia River see Section 3.

Existing project. Provides for a one-half-mile-wide channel across a bar 55 feet deep (mean lower low water) for the northernmost 2,000 feet, and 48 feet deep (mean lower low water) along the southern 640 feet, to be secured by two rubble mound jetties, spur jetty "A" on the north shore and by dredging. The north jetty is about 2.5 miles long and the south jetty about 6.6 miles long; spur jetty "A" is about 0.3 miles long. Tidal range on bar between mean lower low water and mean higher high water is about 8 feet, and extreme about 13 feet.

The originally authorized project depth of 40 feet was completed in 1918, south jetty completed in 1914 and north jetty in 1917. A spur jetty (jetty "A") was completed in 1939 (repaired in 1961) for the purpose of channel stabilization. Spur jetty "B" currently is classified "inactive." Dredging of the 48-foot bar channel started April 1956 was completed in September 1957. South jetty rehabilitation started June 1962 was completed September 1964. North jetty rehabilitation started January 1965 was completed April 1965. Additional rehabilitation of the south jetty was initiated in May 1982 and completed in September 1982. Deepening bar channel to 55 feet completed September 1984. In FY 95 a 500-foot section of the south jetty was removed to allow unimpeded access by fisheries resources to 603 acres of intertidal habitat under Section 1135 authority. Project dimensions were available at end of fiscal year. (For details relating to previous projects,

see page 1999, Annual Report for 1915 and page 1740 of Annual Report for 1938.)

Local cooperation. Fully complied with. Local interests contributed $500,000 toward construction of the north jetty, which was completed in 1917.

Terminal facilities. Chinook Packing Company owns a wharf for receiving fresh fish, and one additional fish buying company is located at Chinook. A portion of wharf is also used as a public landing. At upper end of channel there is a turning and mooring basin with facilities for mooring 350 fishing and recreational craft. Adequate terminal and mooring facilities include a public launching ramp, hoist with 10-ton capacity and suitable supply facilities.

Operations during fiscal year. Maintenance: A total of 3.3 million cubic yards of material was removed. The U.S. hopper dredge Essayons removed 1.5 million cubic yards, and the contract hopper dredge Sugar Island removed 1.8 million cubic yards.

6. COLUMBIA RIVER BETWEEN VANCOUVER, WA, AND THE DALLES, OR

Location. On Columbia River, between Interstate Bridge at Vancouver, WA, 106.5 miles above mouth and The Dalles, OR, mile 191, a distance of 84.5 miles. For description of Columbia River, See Section 3, "Columbia and Lower Willamette Rivers Below Vancouver, WA, and Portland, OR."

Existing project. Channel 27 feet deep at low water and 300 feet wide between Vancouver, WA, and The Dalles, OR, 84.5 miles; a channel 10 feet deep at low water and 200 feet wide at upstream entrance to Oregon Slough, OR; a suitable turning basin adjacent to site of port development in vicinity of Camas and Washougal, WA; a boat basin at Hood River, OR, 500 by 1,300 feet and 10 feet deep at normal Bonneville pool level, with a connecting channel of same depth to deepwater, and a protecting breakwater on easterly side; a barge channel to waterfront at Bingen, WA, 10 feet deep at normal Bonneville pool level, 200 feet wide and about 1 mile long, and an access channel 7 feet deep at normal Bonneville pool level, 100 feet wide and about 1,000 feet long, to a natural mooring basin for small boats near east end of channel; and construction of The Dalles small boat basin, to provide a breakwater and shear boom protected basin about 400 by 800 feet in size with depth of 8 feet below a pool elevation of 72.5 feet at mean sea level. Tidal range between mean lower low water and mean higher high water at Vancouver is about 3 feet and at Bonneville about 0.2 foot at low stages of the river. Extreme tidal ranges are about 4 feet and 0.4 foot, respectively.

Existing project is complete. Construction of The Dalles small boat basin was completed in 1949. Channel dredging at upper end of Oregon Slough was accomplished in 1957. Project depth of 27 feet between Bonneville and The Dalles, OR, was achieved April 1959. The 27-foot channel depth between Vancouver, WA, and Bonneville, OR, was completed May 1938. Improvement of lower entrance of Bonneville Dam lock was completed in May 1961. At the present time, the channel is maintained to a depth of 17 feet, which is adequate for user traffic. Construction of a boat basin at Hood River, OR, and of Camas-Washougal, WA, turning basin was accomplished February 1962. Construction of a barge channel in Columbia River near Bingen, WA, was completed September 1963. Small boat recreation channel 100 feet wide 6 feet deep at South Channel Government Island completed 1985 under section 107.

Local cooperation. Fully complied with.

Terminal facilities. At Vancouver, WA, upstream of Interstate Highway Bridge at River Mile 108.1 on site of former shipyard are numerous shipbuilding facilities equipped with railway and river moorage facilities. Also in this area are a paper-storage warehouse with barge slip, two boat-building businesses, and a storage dock with gantry crane. Sites are available for development to suit lessee.

At Camas, WA, about 13.5 miles upstream from Vancouver, there is a private wharf used for transfer of paper-mill supplies and paper to and from barges, and facilities for discharging bulk oils from barges.

At Port of The Dalles (mile 44 above Bonneville) there is a municipal wharf 125 by 1,100 feet for use by tugs and barges. There is a one-story timber and corrugated iron warehouse, 94 by 461 feet, on this wharf. A private elevator with a capacity of 40,000 bushels and a public elevator of 1,113,800-bushel capacity for handling bulk grain to barges are also at The Dalles. Public elevator has rail, truck, and water connections. There is a port owned rail connection about three-fourths mile below municipal wharf where certain types of cargo may be handled between railroad cars and barges.

At numerous locations along the entire waterway there are facilities for transfer of logs to water from trucks and public and private boat basins. Facilities are considered adequate for present commerce.

Operations during fiscal year. Maintenance: Condition surveys were performed. U.S. hopper dredge Yaquina removed 96,760 cubic yards of material.

7. COLUMBIA RIVER CHANNEL IMPROVEMENTS, OR

Location. The project area includes the Lower Columbia and Willamette Rivers. Work includes deepening the navigation channel to 43 feet, construction of wildlife mitigation features and environmental restoration features. The Columbia

River section extends from the mouth near river mile (RM) 3 to RM 106.5. The Willamette River section extends from the mouth to RM 11.6. The Willamette River portion of the project has been deferred and will be reevaluated in a subsequent NEPA document after resolution of cleanup issues associated with its being named to the federal National Priorities List by USEPA under the Comprehensive Environmental Response, Compensation, and Liability Act.

Existing project. Refer to Columbia & Lower Willamette Rivers below Vancouver, WA and Portland, OR project

Local cooperation. The project is sponsored by the six lower Columbia River Ports: Port of Portland, Port of St Helens on the Oregon side and the Port of Vancouver, Port of Woodland, Port of Kalama, and Port of Longview on the Washington side.

Operations during fiscal year. New Work: The primary effort for the fiscal year was spent conducting data collection and monitoring action related to requirements in the NOAA Fisheries and USFWS biological opinions. In January 2003 the Final Supplemental Integrated Feasibility Report and Environmental Impact Statement was issued for public review. In June 2003 the States of Oregon and Washington issued water quality certification and concurred with conditions to the Corps Coastal Zone Management Consistency determination.

8. COOS BAY, OR

Location. On Oregon coast 200 miles south of mouth of Columbia River and 445 miles north of San Francisco Bay. It is about 13 miles long and 1 mile wide, with an area at high tide of about 15 square miles. (See NOAA Charts 18580 and 18587.)

Existing project. Two rubble mound, high-tide jetties at entrance; a channel across the outer bar 47 feet deep and 700 feet wide, reducing gradually to 37 feet deep and 300 feet wide near River Mile 1 and continuing to about mile 9; thence a channel 37 feet deep and generally 400 feet wide to mile 15; Note-anchorage is gone, remove this piece an anchorage area 35 feet deep, 800 feet wide, and 1,000 feet long at Empire (River Mile 5.5); turning basins at North Bend (River Mile 12.5) and Coal bank (River Mile 14.7) 37 feet deep, 650 feet wide and 1,000 feet long; a channel 22 feet deep and 150 feet wide from Smith's Mill (River Mile 15) to Millington (River Mile 17); a small boat basin, about 500 by 900 feet at Charleston, with a connecting channel, 16 feet deep, 150 feet wide and 6,200 feet long, to deep water in Coos Bay, and construction of a protecting breakwater and bulkhead. Plane of reference is mean lower low water. Tidal range between mean lower low water and mean higher high water is 7 feet and extreme is about 11 feet at both the entrance and at Coos Bay.

South jetty was completed in 1928, north jetty in 1929, and 24-foot channel in 1937. The south jetty was restored in 1941 and 1942 by construction of a concrete cap for full length of the jetty. Excavation of channel to 30 feet deep and generally 300 feet wide from entrance of Isthmus Slough was completed in 1951. Dredging outer bar channel to a depth of 40 feet, decreasing to 30 feet at Guano Rock was completed in 1952. Construction of the Charleston Channel and small-boat basin was completed in September 1956. Rehabilitation of south jetty was started in June 1962 and completed December 1963. Repair of north jetty was completed in August 1989. Construction of the deeper and wider channel to mile 15 was completed in 1979. Deepening of Charleston channel and turning basin was completed in 1985 under Section 107. (For details relating to previous projects, see page 1987 to Annual Report for 1915 and page 1728 of Annual Report for 1938.)

A modification to the existing project was authorized in the FY 1996 Energy and Water Development Appropriations Act, Public Law 104-46, November 13, 1995. This authorization provided for deepening the channel by 2 feet to 47 feet below mean lower low water (MLLW) from the entrance to Guano Rock (river mile 1) and to 37 feet below MLLW from river mile 1 to 15. Public Law 104-46 also provided for deepening by two feet and expanding the turning basin at river mile 12 by 100 feet from 800 by 1000 feet to 900 by 1000 feet. The excavation material for the channel deepening was transported to the ocean for disposal. The cost for preparation of the plans and specifications and the construction of the project was $11,616,000, of which $8,116,000 was federal and $3,500,000 was non-federal. In addition, the sponsor paid 100 percent of the estimated cost for dredging the berth areas.

Local cooperation. Fully complied with. Requirements are described in full on page 37-5 of FY 1981 Annual Report.

The sponsor, International Port of Coos Bay, signed a Project Cooperation Agreement on May 8, 1996 for the project modification to deepen the channel as authorized in Public Law 104-46. In accordance with cost sharing requirements of the Water Resources Development Act of 1986, the Federal Government provided 75 percent of the costs associated with the general navigation features of the project. The non-federal sponsor was required to provide 25 percent of the total construction cost of the general navigation features up front. The sponsor was also required to provide an additional 10 percent of the cost of the general navigation features of the project in cash over a period not to exceed 30 years.

Terminal facilities. At North Bend there is a municipal dock 649 feet long fronting on channel,

about 2,380 feet of privately owned mill docks, and three oil receiving terminals in vicinity.

At Coos Bay there is a privately owned dock with a frontage of 1,345 feet, open to the public on equal terms; several small landings for fishing and harbor craft; and three lumber docks with 1,300-foot, 576-foot and 500-foot frontages, respectively.

In the North Spit industrial area, there is one woodchip loading facility having a frontage of 1200 feet and a smaller T-dock operated by the Port of Coos Bay.

At Eastside, on Isthmus Slough, there is a 200-foot dock.

At Empire there is a privately owned lumber dock with frontage of 510 feet, and an oil terminal, owned by Port of Coos Bay, for receipt of petroleum products by barge. A barge slip also owned by the Port was completed in 1986.

At Charleston there are wharves, for receipt of fresh fish and shellfish and large seafood receiving and processing plant. There are also two municipally owned small-boat basins, open to all on equal terms, capable of mooring 250 fishing and recreation craft. Servicing facilities for small craft are available at all facilities, and public launching ramps have been constructed in Charleston area by private interests. A privately owned floating moorage on Joe Ney Slough has facilities for mooring about 50 fishing vessels.

At Jordan Cove area there is a dock, 248 feet long, for wood chip ships.

Operations during fiscal year. Maintenance: The US hopper dredge Yaquina removed 101,991 cubic yards, the clamshell dredge Sea Vulture removed 9,554 cubic yards and Sugar Island removed 662,916 cubic yards.

9. COQUILLE RIVER, OR

Location. Rises in Coast Range, flows generally westerly for about 100 miles, and empties into Pacific Ocean at Bandon, OR, 225 miles south of mouth of Columbia River and 420 miles north of San Francisco Bay. (See NOAA Charts 18580 and 18186.)

Existing project. Two rubble mound high-tide jetties at river mouth, south jetty 2,700 feet long and the north, 3,450 feet long; and a channel 13 feet deep at mean lower low water and of suitable width from the sea to a point 1 mile above old Coquille River Lighthouse, and snagging to State highway bridge at city of Coquille. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water at mouth is 7 feet and extreme about 10 feet.

Jetties were completed in 1908 and entrance channel in 1933. North jetty was reconstructed in 1942 and a 750-foot extension to easterly end was constructed in 1951. South jetty was repaired in 1954 and north jetty in 1956. Coquille Lighthouse rehabilitation was completed June 21, 1976. Port of Bandon constructed boat basin facility in conjunction with protective breakwater and entrance channel construction in 1985, under Section 107. (For details relating to previous projects, see page 1986 of Annual Report for 1915 and page 1727 of Annual Report for 1938.)

A plan to deepen the entrance channel of the Coquille River from 13 feet to 18 feet was approved in May 1988. The economics were reevaluated in FY1993 and the project was not economically feasible at that time.

Local cooperation. Restoration of lighthouse using Code 710, Recreation Facilities at Completed Projects funding, required 50 percent cost sharing with non-Federal sponsor (Oregon State Parks).

Terminal facilities. At Bandon: A publicly owned wharf, and a small-boat basin open to all on equal terms.

Operations during fiscal year. Maintenance: U.S. hopper dredge Yaquina removed 37,506 cubic yards of material from the entrance channel.

10. DEPOE BAY, OR

Location. Harbor on Oregon coast 100 miles south of mouth of Columbia River. (See Coast and Geodetic Survey Chart 5902.)

Existing project. Two rubble mound high-tide jetties at river mouth, south jetty 2,700 feet long and the north, 3,450 feet long; and a channel 13 feet deep at mean lower low water and of suitable width from the sea to a point 1 mile above old Coquille River Lighthouse, and snagging to State highway bridge at city of Coquille, and a Small Boat Basin channel 13 feet deep, 300 feet long and 100 feet wide and access channel 500 feet long and 50 feet wide. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water at mouth is 7 feet and extreme about 10 feet.

Local cooperation. Fully complied with.

Terminal facilities. Facilities, in inner basin, consist of landings and floats to accommodate operators of excursion and commercial fishing boats. Facilities considered adequate for existing commerce.

Operations during fiscal year. Maintenance: Preparation of Plans and Specifications for landslide stabilization behind the seawall. Initiation of a construction contract to stabilize the landslide.

11. PORT ORFORD, OR

Location. On Oregon coast 250 miles south of Columbia River entrance and 390 miles north of San

Francisco Bay. (NOAA Chart 18203 and Geological Survey Quadrangle, Port Orford, OR)

Existing project. Improvement of harbor by 55-foot extension of existing locally constructed breakwater and dredging of a channel 16 feet deep, 90 feet wide, and 750 feet long. Breakwater was completed October 1968. Channel was completed September 1971. The authorization was modified by WRDA 92 to allow the Corps to maintain the authorized navigation channel within 50 feet of the port facility.

Local cooperation. Fully complied with.

Terminal facilities. In FY 2000 local interests replaced the aging wooden pile dock with a sheet pile bulkhead and backfill dock. This dock provides almost 3 acres of dock area and two large-capacity cranes.

Operations during fiscal year. Maintenance: During the summer months a clamshell Sea Vulture removed 27,500 cubic yards of material. A winter dredging contractor removed 1,834 cubic yards

12. ROGUE RIVER HARBOR AT GOLD BEACH, OR

Location. Rises in Cascade Range in southwestern Oregon; flows westerly through Coast Range, and empties into Pacific Ocean 264 miles south of mouth of Columbia River and 381 miles north of San Francisco Bay. (See NOAA Chart 18202.)

Existing project. Two jetties at entrance, and a channel 13 feet deep and 300 feet wide from ocean to a point immediately below State highway bridge, about 1 mile, including widening channel at a point about 0.25 mile below bridge to form a turning basin 13 feet deep, 500 feet wide, and 650 feet long, and a Boat Basin Channel 10 feet deep by 100 feet wide approximately 2,500 feet long. At request of local interests, turning basin was located in south portion of estuary downstream from a point 0.25 mile below bridge. This change was effected to permit adequate terminal facilities to be constructed adjacent to turning basin. Mean lower low water is plane of reference. Range of tide between mean lower low water and mean higher high water is 7 feet, and extreme about 14 feet.

Project as authorized has been completed. Construction of two jetties at entrance was completed September 1960. Dredging river channel by contract and entrance bar by government plant was completed October 1961. North jetty rehabilitation along channel side was completed October 1966. Breakwater construction and dredging, under contract awarded in September 1964, was 17 percent accomplished when flood of December 1964 destroyed all completed works. Contract was terminated as further construction at that location was considered unfeasible. Bank protection work at Wedderburn location was completed in October 1972. A breakwater, constructed by Port of Gold Beach, was completed during 1973. In 1985, three pile dikes, located on the south side of channel ocean ward of the boat basin entrance, were completed. In 1997, at the direction of Congress, the boat basin entrance channel was relocated approximately 1,000 feet upstream to a new opening in the breakwater provided by the Port of Gold Beach.

Local cooperation. Fully complied with.

Terminal facilities. There are various landings for fishing and recreational craft. At Wedderburn, across river from Gold Beach, is a facility to accommodate excursion passengers and small freight items destined for various private landings between Wedderburn and Agness, OR. Facilities considered adequate for existing commerce.

Operations during fiscal year. Maintenance: US hopper dredge Yaquina removed 50,983 cubic yards of material from the entrance channel.

13. SIUSLAW RIVER, OR

Location. Rises in coast range, flows about 110 miles westerly and empties into Pacific Ocean about 160 miles south of entrance of Columbia River and 485 miles north of San Francisco Bay, CA. (See NOAA Charts 19583 and 18580.)

Existing project. Provides for 2 high-tide, rubble mound jetties 750 feet apart at the outer end, the north jetty 8,390 feet long (600 feet un-constructed) and the south jetty 4,200 feet long; an entrance channel 18 feet deep and 300 feet wide from deep water in ocean to a point 1,500 feet inside the outer end of existing north jetty; thence a channel 16 feet deep, 200 feet wide with additional widening at bends, and about 5 miles long, to a turning basin, 16 feet deep, 400 feet wide, and 600 feet long, opposite Siuslaw dock at Florence; a channel 12 feet deep, 150 feet wide from Florence to mile 16.5; and at River Mile 15.5 a turning basin 12 feet deep, 300 feet wide, and 500 feet long. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water at mouth of river is 7 feet and extreme about 11 feet. During low stages of river, tidal effect extends to Mapleton, 20.5 miles above mouth. (For details relating to previous project, see page 1988 of Annual Report for 1915.)

A modification to the existing project was authorized by public law 96-367, October 1, 1980. North and south jetty modifications were completed in FY 86. Modifications provide for extending the north and south jetties by 1,900 and 2,300 feet respectively. The jetty extensions terminate at approximately the minus 25-foot contour. Spur jetties were constructed on each jetty extension to reduce long shore currents from transporting material around

the heads of the jetties. Each spur jetty is 400 feet long and originates approximately 900 feet shoreward of the jetty head. The north jetty spur is oriented 45 degrees to the north of the existing jetty alignment and the south jetty spur 45 degrees to the south of the jetty alignment.

In cooperation with local interests and the U.S. Coast Guard, the entrance channel was realigned in FY00. This has resulted in a safer entrance and reduced dredging.

Local cooperation. Fully complied with.

Terminal facilities. Port dock at Florence, 150 feet wide and 350 feet long, is about 5.3 miles above river entrance and accommodates a fish-receiving station at east end of wharf which maintains a 2-ton capacity winch and supplies gasoline, oil and ice to fishermen. Other facilities at Florence consist of various floatways that provide docking facilities for fishing vessels and other small craft and a floating dock with accommodations for 75 commercial fishing vessels. Adjacent to commercial basin is mooring basin with accommodations for 200 sport boats of all sizes.

Modern docks for loading ocean-going barges with packaged lumber is maintained at Mapleton and owned by the Davison Lumber Company.

There are also a number of private landings and log booms between Cushman and Mapleton to accommodate river traffic. These facilities are considered adequate for existing traffic.

Operations during fiscal year. Maintenance: US hopper dredge Yaquina removed 87,748 cubic yards of material.

14. SKIPANON CHANNEL, OR

Location. In tidal waterway extending south 2.7 miles from deep water in Columbia River. Channel enters Columbia about 10 miles above mouth and 4 miles below Astoria, OR. (See NOAA Chart 18523.)

Existing project. Channel 30 feet deep and generally 200 feet wide extending from deep water in Columbia River to railroad bridge at Warrenton, OR, distance of 1.8 miles, turning basin of same depth, mooring basin 12 feet deep at mean lower low water at Warrenton, OR, and channel 7 feet deep, generally 40 feet wide, with increased widths at log dumps and terminals, for 4,500 feet via cutoff channel above railroad bridge. Channel is maintained to 17 feet, which is adequate for user traffic. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is about 8 feet; extreme is about 13 feet.

Project as authorized is complete. Dredging river channel and turning basin was completed in 1939. Construction of small-boat mooring basin at Warrenton, OR, was completed October 1957, and fill stabilization work was accomplished in August 1958.

Local cooperation. None required.

Terminal facilities. City of Warrenton owns wharf with a 300-foot frontage open to pubic on equal terms. One privately owned cannery wharf with a 300-foot frontage is used for unloading fish and handling fishnets. One privately owned boatyard has floats and moorage facilities for use by a maximum of 80 small boats. Small-boat basin has facilities for numerous fishing and recreation craft, and a privately owned lumber mill has a barge loading facility for chips and lumber. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: Project condition surveys and dredging at the confluence was performed. A total of 15,000 cubic yards of material was removed from project.

15. TILLAMOOK BAY AND BAR, OR

Location. Bay is on Oregon coast about 50 miles south of mouth of Columbia River. (See NOAA Charts 18520 and 18558.)

Existing project. Provides for a jetty about 5,700 feet long on north side of entrance and a jetty 8,000 feet long on south side; a channel through bar 18 feet deep and of such width as can be practically and economically obtained; for a channel 200 feet wide and 18 feet deep from deep water in bay to Miami Cove; and for initial dredging to 12 feet deep of a small-boat basin and approach thereto at Garibaldi, OR. Project also provides for improvement of Bay ocean Peninsula, OR, by construction of sand and rock fill dike 1.4 miles long, on alignment extending between Pitcher Point and town of Bay Ocean. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is 8 feet; extreme is about 14 feet. Hobsonville Channel portion of project is inactive.

Except for construction of Hobsonville Channel portion, classified inactive, channels were completed in 1927, north jetty in 1933, improvement of Bay ocean Peninsula in 1956 and small-boat basin in 1958. The north jetty was rehabilitated in 1965 and again in 1991. South jetty construction was initiated in 1969, extended in 1974, and completed to the authorized 8,000 feet in 1978. 18-foot channel to Miami Cove is inactive due to mill closure. (For details relating to previous projects, see page 1989 of Annual Report for 1915 and page 1474 of Annual Report for 1936.)

Local cooperation. Fully complied with. Requirements are described in full on page 37-9 of FY 1981 Annual Report.

Terminal facilities. At Garibaldi: A facility owned by the Port of Bay City, for shipping lumber

and receiving logs, a public landing suitable for mooring fishing vessels, towboats, and other craft. Small-boat basin has adequate facilities for mooring fishing and recreational craft. A privately owned boat ramp and moorage is available for recreational craft.

At Bay City: A privately owned wharf used exclusively for receipt of fresh fish and shellfish. Facilities considered adequate for existing commerce.

Operations during fiscal year. Maintenance: A major maintenance study of the North and South Jetty continued.

16. UMPQUA RIVER, OR

Location. Rises in Cascade Range, flows westerly about 120 miles, and empties into Pacific Ocean 180 miles south of Columbia River and 465 miles north of San Francisco Bay. (See NOAA Charts 18580 and 18584.)

Existing project. A jetty on north side of entrance about 8,000 feet long, a south jetty 4,200 feet long extending to a point 1,800 feet south of outer end of north jetty; dredging to provide a usable entrance channel 26 feet deep, and a river channel 22 feet deep and 200 feet wide, from mouth to Reedsport, a distance of about 12 miles with a turning basin at Reedsport 1,000 feet long, 600 feet wide, and 22 feet deep; deepening of channel at Winchester Bay to 16 feet deep by 100 feet wide for 3,100 feet, then adding 16 feet deep by 100 feet wide for 500 feet, and 12 feet deep by 75 feet wide for 950 feet beyond boat basin making up the East Boat Channel. A new West Boat Channel was added 16 feet deep by 100 feet wide for 4,300 feet and completed in 1984. Project was modified in 1951 to provide a channel in Scholfield River, but this portion of the project is currently inactive. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water at river mouth is 7 feet, and extreme range is about 11 feet.

North jetty was completed in 1930. Extension to original south jetty was completed in 1938. Dredging a 22-foot channel from mouth of river to Reedsport was completed in 1941. Gardiner Channel and turning basin was completed in 1949 and Winchester Bay Channel and mooring basin in 1956. Rehabilitation of south jetty was completed August 1963. Extension of training jetty was completed October 9, 1980. Deepening Winchester Bay East Channel and new West Channel completed 1984 under Section 107. (For details relating to previous projects, see page 2967 of Annual Report for 1898 and page 1732 of Annual Report for 1938.)

Local cooperation. None required.

Terminal facilities. At Gardiner there is about 650 feet of wharf frontage. Also there is an oil unloading facility owned by International Paper Co. for exclusive use of tanker barges (note, International Paper is out of business). Port of Umpqua owns one wharf with 456 feet of water frontage, of which 228 feet is usable for vessels and another with about 75 feet of water frontage which has not been used generally for commercial shipping.

On Bolon Island across the river from Reedsport a wharf was constructed which has about 5 acres of open storage for lumber and available to all on equal terms.

At Winchester Bay, 2 miles from river entrance there is a major sports and commercial fishing harbor. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: U.S. hopper dredge Yaquina removed 99,558 cubic yards of material, and the clamshell Sea Vulture removed 13,963 cubic yards of material from Winchester Channel.

17. WILLAMETTE RIVER AT WILLAMETTE FALLS, OR

Location. Locks and dam covered by this project are at Willamette Falls, a rocky reef in Willamette River at Oregon City, OR, about 26 miles above mouth of river.

Existing project. Canal and locks were originally constructed by private interest in 1873 and were purchased by the United States in April 1915 for $375,000. Final report on purchase and rehabilitation of canal and locks is in the Annual Report for 1923, when project was reported 98 percent complete. The project includes four locks a canal basin and an extra guard lock used to prevent flooding when river levels are high. The system acts as a fluid staircase between the upper and lower reaches of the Willamette River. Total length of existing canals and locks is about 3,500 feet. Principal features of existing canal and locks at Willamette Falls are set forth-in Table 28-J. Ordinary fluctuation of stage of water above locks is 12 feet and extreme, due to flood conditions, 20 feet. Below locks, ordinary fluctuation is 15 feet and extreme 50 feet.

Until the 1940's, the gates were opened manually. Now, the gates are operated by hydraulic pumps controlled by switches in two control stations with the aid of closed-circuit television and radio communication. All the gates have been replaced under minor rehabilitation funds. Existing locks and grounds are in good condition and in continuous operation. New service building was completed in 1988 costing $523,000. The project was placed on the National Register of Historic Places in 1974, and was established as an Oregon Civil Engineering Landmark in 1991.

As a result of the mill closure in 1996, one of two shifts was eliminated and hours of operation reduced.

Local cooperation. Fully complied with.

Terminal facilities. Simpson Paper closed the mill in 1996 after over 100 years of operations. The mill was sold to West Linn Paper. West Linn Paper has a timber wharf about 850 feet long, extending to and supported by a concrete division wall built in lock canal by the United States. The use of the wharf for operations purposes by the mill may be changed due to shipping changes by the new owner.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued.

18. YAQUINA BAY AND HARBOR, OR

Location. Yaquina Bay is on Oregon coast, 113 miles south of mouth of Columbia River. (See NOAA Charts 18580 and 18581.)

Existing project. Two high tide rubble mound jetties at entrance, north jetty 7,000 feet, and south jetty 8,600 feet long; a spur jetty on channel side of south jetty 4,700 feet from its sea end, 800 feet long; five groins channel ward from south jetty; channel 40 feet deep for a general width of 400 feet across bar and at outer end of entrance channel; a channel 30 feet deep and 300 feet wide to a turning basin of same depth, 900 to 1,200 feet wide and 1,400 feet long, and a channel 18 feet deep and 200 feet wide from 30-foot channel at about mile 2.4, thence upstream to abandoned railroad terminus at Yaquina, a distance of about 4.5 miles. Project also provides for two small boat-mooring basins at Newport, OR. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is 8 feet and extreme is about 12 feet. At mile 1.2 a 1,300 foot long breakwater protecting the Port of Newport South Beach Marina together with an entrance channel 8 feet long by 100 feet wide for a distance of 2,035 feet.

Project as originally authorized was completed in May 1952. Restoration of jetties was completed in 1934 and extension of north jetty 1,000 feet seaward was completed in 1940. Construction of mooring basin at Newport and dredging of channel and turning basin to project dimensions, were completed during fiscal year 1949. Restoration of north jetty was again accomplished in 1956. Under modification of July 3, 1958, extension of north jetty was completed in September 1966, dredging of 40-foot bar channel and 30-foot river channel was completed in October 1968, and extension of south jetty was completed in June 1972. The north jetty was rehabilitated in 1978, in 1988, and again in 2001. (For details relating to previous projects see Annual Report for 1893, part 4, page 3314, and Annual Report for 1938, page 1736.)

Local cooperation. None required.

Terminal facilities. At McLean Point, on north side of bay, about 2 miles from entrance, Port of Newport has two berths capable of serving ocean-going vessels, one 435 feet long, the second 520 feet long. At the time the second berth was dredged, a retaining wall and fill of 6 acres were constructed adjacent to deep water. There now is 40 acres of filled land adjacent to deep water, and of this total 7 acres were constructed in 1956-57. This facility has necessary carriers and lifts trucks for handling lumber cargoes, warehouse for covered cargo storage, and is open to all on equal terms.

Port of Newport also has a public wharf with 300 feet of frontage for servicing fishing boats. In addition, Port of Newport maintains 510 berths for mooring commercial and sport fishing vessels. There are several seafood companies on the bay, which have their own facilities for handling fresh fish and crab. Supplies and petroleum products are readily available for small vessels. On south side of bay about 1.2 miles above entrance, Port of Newport has constructed South Beach Marina which can handle approximately 600 pleasure craft and shallow draft fishing boats. Public facilities include public automobile and boat trailer parking, boat launching ramp, fuel dock, fishing pier, and picnic area. A dry boat moorage of 120 boats is complete. A swing hoist with 3-ton capacity is currently available and one with 60-ton capacity is planned.

About 2.0 miles above entrance, Oregon State University, in conjunction with the Marine Science Center on 52 acres, maintains a 220-foot pier for docking large and small research vessels and a 100-foot float for docking small boats. Docking facilities are restricted to research vessels and State of Oregon small boats.

Operations during fiscal year. Maintenance: US hopper dredge Yaquina removed 170,455 cubic yards of material and the Sugar Island removed 150,000 cubic yards of material.

19. YAQUINA RIVER, OR

Location. Rises in Coast Range, flows about 50 miles in a westerly direction, and empties into Yaquina Bay, on Oregon coast. (See US Coast and Geodetic Survey Charts Nos. 5802 and 6058.)

Existing project. Provides for two controlling half-tide dikes of piling, brush, and stone, each about 1,100 feet long (constructed by local interests), and for a channel 10 feet deep and generally 150 feet wide on Yaquina River and 200 feet wide in Depot Slough, extending from town of Yaquina near RM 4.0 to Toledo at RM 14.4.

Mean lower low water is plane of reference. Tidal range between lower low water and mean higher high water is 8 feet and extreme about 12 feet. Freshet heights are about 12 feet at mouth of Depot Slough. Channel work authorized March 1913 was completed

in 1914. Additional work authorized in 1960 was completed in 1969.

Local cooperation. Fully complied with.

Terminal facilities. Near town of Yaquina at river mouth, which is also head of Yaquina Bay, there is a moorage for small vessels and a small-craft shipyard. The Port of Toledo has public-terminal facilities for accommodation of local craft. There are also privately owned facilities for loading lumber barges, receipt of bunker fuel, and log rollways for receipt of logs. These facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: Environmental studies performed.

20. PROJECT CONDITION SURVEYS

Hydrographic surveys are conducted to determine navigation conditions at boat basins, small navigation projects, and channels not funded on a project basis for the current fiscal year. Soundings in subject areas are conducted in order to evaluate shoaling conditions. Hydrographic charts are prepared and distributed. Fiscal year costs were $35,521. See Table 28-I for surveys conducted during FY03.

21. NAVIGATION ACTIVITIES UNDER SPECIAL AUTHORIZATION

Navigation Activities Pursuant to Section 107 of the 1960 Rivers and Harbors Act, Public Law 645, 86th Congress, as Amended. In addition to general requirements, each project is limited to a federal statutory cost of not more than $4,000,000. The local sponsor must agree to provide an amount, in cash, not less than 10 percent or more than 50 percent of total project cost for navigation depending upon the planned depth of channel or basin; pay an additional 10 percent of the construction costs in cash over a period not to exceed 30 years after project completion. The non-federal sponsor must also agree to provide, maintain, and operate an adequate public parking, landing or wharf, service facilities, berthing areas, floats, pier, slips and similar marina and mooring facilities. The remaining portion of the project, such as the access channel or breakwater structure, is maintained by the Corps of Engineers at Federal expense within a limited amount. Federal expenditures for operation and maintenance under the Section 107 authority are administratively limited to the greater of $4,500,000, or 2.25 times the Federal costs of the project including costs for the feasibility through the construction phases. No projects were under construction during the fiscal year.

Navigation Activities to Section 111 of the 1968 Rivers and Harbors Act Public Law 483, 90th Congress, as Amended. In addition to general requirements, each project is limited to a federal statutory cost of not more than $5,000,000. The non-federal sponsor must agree to provide a cost share amount in the same proportion as the cost sharing provisions applicable to the project causing the damage. The non-federal sponsor must also provide interests in real estate in the same manner required for the project causing the shore damage. The non-federal sponsor must also agree to operate and maintain the mitigation measures, and, in the case of interest in real property acquire in conjunction with nonstructural measures, to operate and maintain the property for public purposes in accordance with regulations prescribed by the Corps of Engineers. No projects were under construction during the fiscal year.

Shore Protection

22. SHORE PROTECTION ACTIVITIES UNDER SPECIAL AUTHORIZATION

Protection of the shores of publicly owned property from hurricane and storm damage pursuant to Section 103 of the River and Harbor Act of 1962, Public Law 874, 87th Congress, as Amended. In addition to general requirements, each project is limited to a Federal statutory expenditure of not more than $3,000,000 per year. Costs for protection of Federally owned properties are 100 percent Federal. Costs assigned to areas meeting public use criteria are 35 percent non-Federal. Costs assigned to protection of privately owned undeveloped lands and shores that are not open to the public are 100 percent non-Federal.

See Table 28-L for expenditures under Section 103 during the fiscal year.

No projects were under construction during the fiscal year.

Flood Control

23. APPLEGATE LAKE, ROGUE RIVER BASIN, OR

Location. In Jackson County, OR, on Upper Applegate River, a tributary of Rogue River, at River Mile 46, about 23 airline miles southwest of Medford, OR.

Existing project. A gravel-fill embankment dam, 242 feet high from streambed to crest with an overall length of 1,300 feet. A gate-controlled concrete chute-type spillway on the left abutment, and a regulating outlet conduit, and intake tower with multilevel intakes. Applegate Lake, 5 miles long, provides 75,000 acre-feet of usable storage for flood control and water conservation utilization. Project controls runoff from a drainage area of 223 square miles. In addition to flood control, the reservoir is operated to provide irrigation, fish and wildlife enhancement, water quality control, and recreation

benefits. Recreation facilities were provided by the Corps of Engineers, with operation and maintenance by the USFS under a memorandum of agreement. Project is complete and operating.

Freshets regulated by Applegate Lake on Applegate River and Rogue River is shown in Table 28-K.

Local cooperation. Authorizing act requires that State of Oregon insure maintenance of stream flow released for fishery. In addition, costs allocated to irrigation would have to be repaid in a manner and to an extent consistent with reclamation laws and policies. Oregon Department of Fish and Wildlife made filing May 31, 1962 with State Engineer for water rights for use of stored water and natural flows for fish habitat improvement in amounts and at times specified in project authorization. The U.S. Bureau of Reclamation has made a feasibility study of Applegate Irrigation Division. The results of the study indicate that at present there does not appear to be a feasible Federal irrigation project for the Applegate River valley. Local interests have furnished all local cooperation specified by the 1970 Flood Control Act. The Secretary of the Army approved the assurances on May 8, 1975.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued.

24. BLUE RIVER LAKE, OR

Location. On Blue River, a major tributary of McKenzie River, 1.8 miles above confluence of the two streams at the confluence of Quartz Creek and Blue River and about 42 miles easterly of Eugene, OR.

Existing project. A gravel-filled embankment dam of 1,329 feet long at crest including spillway and 319 feet above the lowest point of the general foundation. A concrete gravity chute-type spillway with two gates is located on left abutment. Outlet works are in left abutment. On left shore of reservoir an earth-and-gravel fill embankment, about 1,535 feet long and 70 feet high, closes a low saddle between Blue River and McKenzie River. Project controls runoff from drainage area of 88 square miles. Reservoir provides 85,000 acre-feet of usable flood control storage and is operated as a unit of coordinated reservoir system to protect Willamette River Valley and increase low water flows for navigation and other purposes. The U.S. Forest Service under a Memorandum of Agreement provides recreation facilities. Project is complete. Construction of dam and appurtenant works was initiated in May 1963 and operation for flood control was effective in October 1968. Settlement of claims was completed in May 1974.

Eugene Water and Electric Board (EWEB) were granted a FERC license in November 1989 to install two small hydropower units at Blue River Lake project. EWEB has delayed their plans for hydropower units pending the conclusion of a Corps proposal to add water temperature control to the regulating outlet tower. Refer to the Willamette River Temperature Control project write-up for additional information.

Freshets regulated by Blue River Lake project on Blue River, a major tributary of McKenzie River, are shown in Table 28-K.

Local cooperation. None required.

Operations during fiscal year. Maintenance: Routine operation and maintenance work performed.

25. COTTAGE GROVE LAKE, OR

Location. On Coast Fork of Willamette River, 29 miles from mouth. Coast Fork raises in Douglas County, OR, on western slope of Cascade Range and northern slope of Calapooia Range, flows north for 49 miles, and unites with Middle Fork to form main Willamette River.

Existing project. An earth fill dam, 1,750 feet long at crest, 114 feet high from lowest point of the general foundation, a concrete gravity free overflow spillway 264 feet long near the right abutment, and a concrete gravity non-overflow section 96 feet long forming the right abutment. Total length of dam is 2,110 feet. Outlet works, consisting of three gate-controlled conduits, pass through spillway section. Reservoir provides 30,060 acre-feet of usable flood control storage and controls runoff of drainage area of 104 square miles. Project is operated as a unit of coordinated reservoir system to protect Willamette River Valley and increase low water flow for navigation and for other purposes. Recreational development consists of day use and overnight facilities at five sites operated by the Corps of Engineers. Construction of project initiated August 1940 was completed April 1952. Dam and reservoir have been in continuous operation since September 1942.

Freshets regulated by Cottage Grove Lake on Coast Fork Willamette River are shown in Table 28-K.

Local cooperation. Development of additional recreation facilities will require a local sponsor willing to cost share and assume all operation and maintenance of park facilities.

Operations during fiscal year. Maintenance: Routine operation and maintenance work continued.

26. DORENA LAKE, OR

Location. On Row River, OR, 7 miles from mouth. Row River rises in Lane County on western slope of Cascade Range, flows northwest for 19

miles, and enters Coast Fork of Willamette River 19.5 miles above mouth.

Existing project. An earth fill embankment dam of, 3,352 feet long at crest and 145 feet high from lowest point of the general foundation. Concrete gravity free-overflow spillway, 200 feet long, forms right abutment. Outlet works on five slide-gate-controlled conduits pass through spillway section. Reservoir provides 70,500 acre-feet of usable flood control storage and controls runoff of 265 square miles. The Project is operated as a unit of coordinated reservoir system to protect Willamette River Valley and increase low water flows for navigational and other purposes. Construction of project initiated June 1941 was completed October 1952 except for construction of additional recreation facilities that were funded under the Code 710 program. Future recreation facility construction will be accomplished in accordance with the cost-sharing contract with Lane County, OR. Dam and reservoir have been in continuous operation since November 1949.

Freshets regulated by Dorena Lake project on Row and Coast Fork Willamette Rivers are shown in Table 28-K.

Local cooperation. A multiple project cost sharing agreement has been in force with Lane County since Sept. 1976. It includes 4 projects and 14 parks. At Dorena Lake, 6 parks included in the agreement are managed by Lane County under a lease agreement. Future recreation development will require cost sharing.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Replaced water systems in recreation areas.

27. ELK CREEK LAKE, ROGUE RIVER BASIN, OR

Location. In Jackson County, OR at River Mile 1.7 on Elk Creek, a tributary of Rogue River, about 26.5 miles northerly from Medford, OR.

Existing project. Construction work for the 249-foot high roller compacted concrete gravity dam, 2,600 feet long at the crest, with a gate controlled concrete chute spillway, regulating outlet conduits, power penstock and multiple use intake tower attached to the upstream face of the dam has been stopped due to a court injunction. The project would control runoff from a drainage area of 135 square miles, and provide future municipal and industrial water supply, irrigation, fish and wildlife enhancement, water quality control, and recreation benefits.

Funds to initiate preconstruction planning were appropriated in FY65, and for construction in FY71. Construction was deferred in FY77 due to a lack of state support. Following significant review, evaluation, and a public hearing, the Water Policy Review Board reversed its position and in April 1981 voted to support Elk Creek. Funds were appropriated in FY82 and FY83 to update and continue project design, plans, and specifications. Funds were appropriated in FY85 to resume construction. After initiation of construction, an injunction was placed against completion of the project and additional analysis under National Environmental Policy Act (NEPA) was required in order to remove the injunction. Construction of the project was terminated with the project at 83 feet, one-third its design height.

After completion of the final Environmental Impact Statement Supplemental #2, the Department of Justice filed a motion with the Court to remove the injunction. The Ninth Circuit Court of Appeals issued a ruling on April 21, 1995. In a 2-1 decision, the Court also reversed the District Court decision that EISS #2 met the requirements of the earlier Ninth Circuit opinion and awarded attorneys fees to the plaintiffs. The case was remanded with instructions to prepare a third supplement adequately addressing all issues raised under the NEPA process.

Due to the Ninth Circuit Court of Appeals decision and the current Federal budgetary climate, the Corps does not plan to perform the environmental studies under NEPA necessary to remove the Federal court injunction against completion of the project. Therefore, an evaluation of the requirements for long term of the project in its uncompleted state will be required.

The FY 97 Energy and Water Development Appropriation Act provided funds for long-term management in an uncompleted state, including passive fish passage. Since 1998 the Corps has attempted to remove a section of the Dam to provide a long-term fish passage solution at the project. A National Marine Fisheries Service January 2001 Biological Opinion stated that this was not the only option available to avoid jeopardy to listed Coho Salmon. The Opinion also stated that there was the potential that risks associated with a new trap haul facility could be reduced to an acceptable level. Based on concerns raised by locally elected officials, the Assistant Secretary of the Army for Civil Works determined a need to conduct an agency level review of our plan to remove a section of the Dam. In order to allow for this review, our effort to remove a section of the Dam was deferred in FY 02. Until a permanent fish passage solution is implemented, fish passage around the project will be provided through operation of a temporary trap and haul facility.

Local cooperation. Authorizing act requires that State of Oregon take action prior to construction to insure maintenance in stream of flow to be released for fishery. In addition, costs allocated to irrigation would have to be repaid in a manner and to an extent

consistent with the U.S. Bureau of Reclamation laws and policies. On February 24, 1966, State of Oregon Water Resources Board filed for withdrawal rights of 25 cubic feet per second to maintain a minimum flow for fish. Development of recreation facilities requires a local sponsor willing to cost share in recreation development and assume operations and maintenance of park facilities.

Operations during fiscal year. New Work: Operation during construction continued. The Detail Design Report for the permanent trap and haul facility proceeded to the 30% level and the location for the permanent facility was selected.

28. FALL CREEK LAKE, OR

Location. On Fall Creek, a tributary of Middle Fork Willamette River, about 7 miles above confluence of the streams and about 19 miles southeasterly of Eugene, OR.

Existing project. An earth-and-gravel fill embankment about 5,100 feet long at crest and 193 feet high from lowest point of the general foundation. A gated concrete gravity spillway is in left abutment. Outlet is in right abutment. Reservoir provides 115,000 acre-feet of usable flood control storage and is operated as a unit of coordinated reservoir system to protect Willamette River Valley and increase low water flows for navigation and other purposes.

Construction of project began May 1962 and was essentially complete November 1965. Reservoir storage for flood control was effective October 1965. Sky Camp Lodge was completed October 1978. Future recreation facilities will be provided in accordance with the cost-sharing contract with Bethel School District. Bethel School District has a sub-agreement with the Springfield Kiwanis Club for management of this facility. The Corps manages one park at the project.

Freshets regulated by Fall Creek Lake project on Fall Creek, a tributary of the Middle Fork, Willamette River are shown in Table 28-K.

Local cooperation. Fall Creek parks are managed by Oregon State Parks under lease agreement. Future development will not require a cost sharing agreement.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued.

29. FERN RIDGE LAKE, OR

Location. On Long Tom River, 23.6 miles from the mouth. Long Tom River rises in Lane County, OR, on eastern slope of Coast Range, flows north for 50 miles, and enters Willamette River 147 miles above its mouth.

Existing project. A main dam of 6,624 feet long at crest and 49 feet high from lowest point of the general foundation and two auxiliary dikes, 915 and 3,929 feet long, along northeasterly boundary of lake. Main dam consists of an earth fill embankment dam 6,330 feet long, a concrete gravity spillway near left abutment with a non-overflow structure 46 feet long, containing outlet works, and an overflow structure, 248 feet long, controlled by six automatic gates. Project includes rectification of channel of Long Tom River downstream of dam. Reservoir provides 110,000 acre-feet of usable flood control storage and controls runoff of tributary drainage area of 275 square miles. Reservoir protects Long Tom River Valley and is operated as a unit of coordinated reservoir system to protect Willamette River Valley generally and to increase low water-flows for navigation and other purposes. Dam was originally constructed in 1941 to height of 47 feet. Provision of additional storage for flood control was obtained in 1965 by raising embankments 2 feet to 49 feet above lowest point of the general foundation.

Construction of project initiated April 1940 was completed August 1951, except for provision of additional storage for flood control authorized in 1962 and completed April 1965, and construction of additional recreation facilities funded through the Code 710 program. Construction of three water flow impoundments was completed in 1994 under Section 1135 authority. Dam and reservoir have been in continuous operation since December 1941. Development of future recreation facilities will be in accordance with the cost-sharing contract with Lane County, and requires a 50 percent contribution by the county. Development is subject to availability of funds by the Government and the county.

Freshets regulated by Fern Ridge Lake project on Long Tom River are shown in Table 28-K.

Local cooperation. Fern Ridge Lake is included in the Lane County multiple project cost sharing agreement. Three parks are managed by Lane County under lease agreements. Future development will require cost sharing. The Oregon Department of Fish and Wildlife manages 5,000 acres of land and water for migratory waterfowl under a lease agreement

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Deterioration of main dam drainage system discovered. Remedial actions investigated.

30. LOWER COLUMBIA RIVER BASIN BANK PROTECTION, OR AND WA.

Location. On the Columbia River and tributaries between Sandy River, OR, and mouth of Columbia River.

Existing project. Provides for construction of 224,000 linear feet of bank protection works at 96 locations along Lower Columbia River below River Mile 125 and along principal tributaries in this reach,

to protect existing improvements such as levees and developed industrial lands from further erosion. Existing project is a unit of general comprehensive plan for flood control, navigation, and other purposes in Columbia River Basin. Construction of project began in July 1961 and is 88 percent complete. A total of 191,000 linear feet of bank protection work at 84 locations has been completed. Estimated Federal cost is $28,000,000.

Local cooperation. Flood Control Act of 1950 provides local interests furnish lands and rights-of-way; make necessary highway, highway bridge, and utility alterations; hold the United States free from damages; and maintain and operate completed works. Under Section 103 of the Water Resources Development Act of 1986, Local Interests will also be required to make cash contribution for construction of each site. Estimated costs for all requirements of local cooperation are $2,000,000.

Operations during fiscal year. New Work: Coordination with sponsors and evaluation of local erosion problems continued.

31. MOUNT ST. HELENS SEDIMENT CONTROL, WA.

Location. On the North Fork Toutle River, 2 miles upstream from its confluence with the Green River, in Cowlitz County, southwest Washington. The river systems impacted by the project include Toutle, Cowlitz and Columbia Rivers. Most of the population affected by the problems resides in the communities of Longview, Kelso, Lexington, and Castle Rock, Washington.

Existing project. The project was authorized by the Supplement Appropriations Act, 1985 (Public Law 88, 99th Congress, August 15, 1985). The Act includes authorization "... to construct, operate and maintain a sediment retention structure near the confluence of the Toutle and Green River, Washington, with such design features and associated downstream actions as are necessary, in accordance with the Feasibility Report of the Chief of Engineers dated December 1984." As authorized, the project will provide a permanent solution to potential flooding on the Cowlitz River from sedimentation problems created by the eruption of Mt. St. Helens. The Decision document recommended construction of a single sediment retention structure (SRS) with a 125-foot high spillway at the Green River site on the North Fork Toutle River, improvements to the levee system at Kelso, Washington, and dredging downstream from the SRS for the near term solution to the sedimentation problem.

Local cooperation. Local interests were responsible for provision of all lands, easements, and rights-of-way for the sediment retention structure, dredging disposal areas, and levee improvements. Local interests were also responsible for all alterations and relocations of buildings, roads, bridges and other structures or utilities made necessary by implementation of the project. In addition, operation and maintenance of fish facilities, the levee system at Kelso and dredged material disposal sites are the responsibility of local interests. Cowlitz County offers visitor services in their viewpoint area. Non-federal cash contribution is $3,600,000 and the estimated non-federal land, easements, right-of-ways, and relocations costs are $21,000,000.

Operations during fiscal year. New Work: New Cowlitz River monitoring stream gages were installed to annually verify forecasted rates of sediment movement and fill in the river, and ultimately flood protection levels at the authorized communities. The Annual Sediment Survey documenting the volume of sediment above the SRS was completed as well.

Maintenance: Routine operation and maintenance continued.

32. WILLAMETTE RIVER BASIN BANK PROTECTION, OR.

Location. On Willamette River and tributaries, between Cascade Range and Coast Range, from a point south of Eugene to Portland, OR.

Existing project. Provides for clearing, sloping, and reveting riverbanks; construction of pile and timber bulkheads and drift barriers; minor channel improvements; and maintenance of existing works for control of floods and prevention of erosion at various locations along Willamette River and its tributaries. The current scope of the project is a total of 510,000 linear feet of bank protection at 236 locations. Estimated Federal cost is $30,700,000.

Construction of project began in 1938 and is 96 percent complete. A total of 489,795 linear feet of bank protection work at 230 locations consisting of revetment of riverbanks, pile and timber bulkheads, drift barriers, and channel improvements, have been completed on Willamette River and tributaries.

Local cooperation. Section 3, Flood Control Act of 1936 and Section 103, Water Resources Development Act of 1986 applies. Estimated costs for all requirements of local cooperation under terms of project authorization were $2,300,000.

Operations during fiscal year. Maintenance: 178 bank protection projects were inspected by helicopter in FY03. All repairs continue to be on hold pending development of an "Inventory and Evaluation Report". The report is a requirement of the Draft Willamette River Basin biological opinion. There were no critical facilities requiring repair.

33. WILLOW CREEK LAKE, HEPPNER, OR.

Location. On Willow Creek immediately upstream from Heppner and just downstream from junction of Balm Fork and Willow Creek in Section 35, Township 2 South, Range 26 East, Willamette Meridian.

Existing project. Project provides flood protection to the city of Heppner and downstream area by controlling runoff from a drainage area of 96 square miles. The dam is a roller compacted concrete structure 160 feet high at crest elevation 2,130. Ancillary features include a center uncontrolled spillway with a maximum flood capacity of 93,300 cfs (cubic feet per second), an outlet works with a capacity of 500 cfs, a minor flow works and diversion works. Gross storage capacity of the project is 13,250 acre-feet, consisting of 7,750 acre-feet for exclusive flood control, 1,750 acre-feet for joint flood control and irrigation, 1,750 acre-feet exclusive irrigation, and 2,000 acre-feet dead storage for fish, wildlife, recreation, sediment accumulation, and aesthetics. Limited recreation facilities are being provided.

Willow Creek Parks and Recreation District has leased recreation facilities at Willow Creek Lake. A courtesy handling dock was constructed by the Recreation District utilizing Oregon State Marine Board funds. A playfield area below the dam has been leased to the City of Heppner.

The final Environmental Impact Statement was filed with the Environmental Protection Agency on December 20, 1979. The provisions of the Clear Water Act were met by a Section 404(b)(1) Evaluation and a public notice issued January 12, 1980, and a section 401 certification from the State of Oregon on February 15, 1980. Land acquisition is about 99 percent complete.

Local cooperation. Development of additional recreation facilities will require a local sponsor willing to cost share and assume all operation and maintenance of facilities.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued.

34. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Funds appropriated for inspection of completed local flood protection works are used to determine maintenance condition of completed works, and to ascertain whether local interests properly maintain those works. Numerous levied areas and bank protection works were inspected at various locations along both banks of Lower Columbia River below Bonneville Dam, along Oregon Coast, in eastern Oregon, in southern Oregon and in Willamette River Basin. A representative of sponsoring districts accompanied the Portland District representatives performing the levee inspections. Deficiencies in maintenance and need for repairs were discussed with sponsoring districts' representatives and a report were sent to each sponsor with recommendations for improving maintenance. The program to improve maintenance of completed Federal projects initiated by House Appropriations Committee on Civil Functions was continued.

Refer to Table 28-Q for information relating to completed works.

35 SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Corps of Engineers monitored flood control operations at four Bureau of Reclamation projects (Prineville, Ochoco, Emigrant, and Scoggins), one local project operated by Douglas County (Galesville), and one municipal power project operated by Tacoma City Light (Mossyrock). The projects were partially constructed with flood control funds, thereby subjecting project operation to monitoring by the Corps of Engineers under Section 7, Flood Control Act of 1944.

The four Bureau of Reclamation projects, the Douglas County project and Mossyrock project were operated during the fiscal year within the flood control regulations specified for each project. Reservoir levels returned to more normal levels during November and December, as the dry conditions of 2002-2003 returned to more average conditions. Total cost of monitoring and flood control direction of the six projects during the fiscal year was $67,550.

36. FLOOD CONTROL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Flood Control Activities Pursuant to Section 205 of the 1948 Flood Control Act, Public Law 858, 80th Congress, as Amended: In addition to general requirements, each project selected is limited to a federal statutory cost of not more than $7,000,000. The local sponsor must agree to provide an amount not less than 35 percent or more than 50 percent of total project cost, at least 5 percent of which will be cash; and operate, maintain, repair, replace, and rehabilitate the project upon completion. No projects were under construction during the FY.

No projects were under construction during the fiscal year.

Emergency Streambank Protection Activities Pursuant to Section 14 of the 1946 Flood Control Act, Public Law 526, 79th Congress, as Amended: Emergency Streambank Protection Activities Pursuant to Section 14 of the 1946 Flood Control Act, Public Law 526, 79th Congress, as Amended: In addition to general requirements, each project is limited to a federal statutory expenditure of not more

than $1,000,000 in any one year. The local sponsor must agree to provide an amount not less than 35 percent or more than 50 percent of total project cost at least 5 percent of which will be cash; and operate, maintain, repair, replace, and rehabilitate the project upon completion. No projects were under construction during the fiscal year.

Multiple-Purpose Projects, Including Power

37. BONNEVILLE LOCK AND DAM - LAKE BONNEVILLE, OR AND WA

Location. Project is on Columbia River, 40 miles east of Portland, OR, about 146 miles above mouth of river. For description of Columbia River, see Section 2.

Existing project. A dam, power plant, and lock for power and navigation. Spillway dam extends across main channel from Cascade Island shore to Bradford Island. Overflow crest at 24 feet above mean sea level is surmounted by 18 vertical-lift steel gates, 16 with remote control hoists placed between piers which extend to elevation 99 feet where a service roadway provides access, and two 350-ton gantry cranes for regulating gates. Powerhouse No. 1 extending across Bradford Slough to the Oregon shore has an installation of 10 units, consisting of one unit of 48,000 kilowatts, one unit of 59,500 kilowatts, and eight units of 60,000 kilowatts each, totaling 587,500 kilowatts. Ordinary and extreme fluctuations of river at lower lock gate are about 21 and 47 feet respectively. Project includes fish ladders to serve main channel, Bradford Slough Channel, and Powerhouse II channel. Navigation lock and powerhouses are founded on andesite, and main dam rests on solidified sedimentary rock of volcanic origin. The pool created by dam provides a navigable channel 27 feet deep between Bonneville and The Dalles Dams, a distance of 47 river miles. Principal data concerning navigation lock, spillway dam, and power plant are set forth in Table 28-N.

Dam, navigation lock, 10-unit power generating installation, fishways, and attendant buildings and grounds cost $83,239,395, of which $6,072,480 is for navigation facilities, $39,350,824 for power facilities and $37,816,091 for joint facilities, consisting of dam, fishways, buildings and grounds, and headwall section of power units 0 to 6, cost of which $2,106,000 is allocated to dam and lake facilities.

In response to flow regulations and peakings from upstream plants operating under conditions of Canadian storage and Pacific Northwest-Southwest Intertie, two modifications were undertaken at the Bonneville project. The modification for peaking project was undertaken to minimize adverse environmental effects under rapidly changing flow conditions from upstream dams. The project was completed in 1978 at a cost of $27,195,000. The second modification provided for increased power installation by building a second powerhouse located on the Washington shore adjacent to the end of the existing spillway. The new powerhouse contains eight units of 66,500 kilowatts each and two fish attraction turbine generator units of 13,100 kilowatts each for a combined capacity of 558,200 kilowatts, bringing the entire Bonneville capacity to 1,145.7 megawatts. Additional fish facilities consist of the powerhouse collection system, second fish ladder on the Washington shore, transportation channel connecting the Cascade Island fish ladder with new exit control section, and fingerling bypass facilities which include fish screens in both the powerhouses. To provide for the anticipated increased visitor use, onsite visitor facilities are included. Under authority of the Bonneville Project Act (August 20, 1937), a letter from Bonneville Power Administration to North Pacific Division dated January 21, 1965, requested construction of a second powerhouse.

Construction of original project started October 1933, was completed February 1943. Modification of powerhouse control equipment started March 1957, was completed September 1958. First two power units were placed in operation during fiscal year 1938. Powerhouse with complete installation of 10 units was in operation December 1943.

Construction of modification for peaking work commenced in September 1970 and was completed in September 1978.

Construction of second powerhouse is complete. Final environmental impact statement was filed with Council on Environmental Quality in April 1972. In response to increasing visitation which now exceeds 600,000 a year at the dam site itself and 2,700,000 project wide, a visitor center with windows into the fish ladders, a 60-seat theatre, exhibits and displays was completed in 1975. Units 11 through 18 were on-line by October 1982. The visitor facility for the new powerhouse (which does not require cost-sharing) is an integral part of that structure. The total cost for construction of the second powerhouse was $678,945,000.

In June 1993 work began on the rehabilitation of the First Powerhouse. In the first phase the existing circuit breakers and ten transformers were replaced and the switchyard was rehabilitated. Circuit breaker work was completed in 1995. The remaining work was completed in 1997. Phase I cost was $24,120,000. The second phase consists of replacing the windings of six generators and replacing ten turbines. Second phase work was contracted in 1994 and is scheduled to complete in 2009. Phase II will cost an estimated $110,800,000.

The first powerhouse, spillway, navigation lock and associated facilities have been designated as a National Historic District in 1987.

Development of recreation facilities at Home Valley was completed in FY 1989.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Local cooperation. None required, except for non-federal cost sharing for development of recreational facilities.

Operations during fiscal year New work: Construction is complete on the Bonneville 2 Corner Collector. This ½ mile long flume is designed to increase the survival of juvenile fish past the dam.

Maintenance: Routine operation and maintenance continued. Performed increased activities to protect and enhance the anadromous fisheries in the Northwest. These activities included rehabilitation of aging fish passage structures, removal of obstructions from the turbine environments, and an upgrade to the adult fishways automation system. Continued HTRW site investigation and risk assessment of Bradford Island landfill. Capital improvements include repair/replacement of the generic data acquisition and control system, exciters, governors, cranes, power plant efficiency improvements, replacement oil, main unit circuit breakers, and headgates. Replacement of the potable water system was initiated.

Major Rehabilitation: A contract to rehabilitate the generators and turbines in the first powerhouse is in progress. Four units have been rehabilitated to date.

38. COLUMBIA RIVER TREATY FISHING ACCESS SITES, OR & WA

Location. This project provides for construction of 31 sites along the Columbia River on Bonneville pool, John Day pool, and The Dalles pool.

Existing project. Congress has provided authority through public law to implement a wide range of land management, transfer, acquisition and development actions to provide fishing access for Indian tribes who exercise treaty fishing rights on the Columbia River. The law designates certain federal sites on Bonneville, John Day, and The Dalles pools for fishing access. The improvements required at the access sites are specified in the authorizing legislation. They include all weather access roads, camping facilities, boat ramps, docks, sanitation, and fish cleaning facilities. Construction of these facilities will greatly improve access by the four tribes, which have fishing rights along this reach of the Columbia River.

Local cooperation. None required.

Operations during fiscal year. New work: Construction of the second phase sites continued with five new sites substantially completed, bringing the total to 28 sites. The transfer of these sites was delayed until FY 04.

39. COUGAR LAKE, OR

Location. At mile 4.4 on South Fork McKenzie River which joins McKenzie River about 56.5 miles above its confluence with Willamette River. Project is about 42 miles east of Eugene, OR.

Existing project. A rockfill dam with an impervious earth core, about 1,738 feet long at crest and 445 feet high above the streambed. Reservoir is 6 miles long with storage capacity at full pool of 219,000 acre-feet and controls runoff of tributary drainage area of 210 square miles. Spillway is on right abutment and outlet and power tunnels in left abutment. Outlet tunnel is provided with a chute and stilling basin. Power plant consists of two 12,500-kilowatt units with minimum provisions for installing a third unit of 35,000 kilowatts for future peaking capacity. Improvement functions as a unit in coordinated system of reservoirs for multiple-purpose development of water resources in Willamette River Basin Recreation facilities are provided by the U.S. Forest Service. Also authorized (but un-constructed) is a re-regulating dam, Strube Lake, below Cougar Lake, which would permit Cougar to operate as a peaking power plant. The Strube dam would contain two units totaling 4,600 kilowatts. Estimated Federal cost of Strube Lake and Cougar Additional Units is $114,000,000.

Construction of project initiated June 1956 is complete, excluding Strube Lake and Cougar Additional Unit for which planning is essentially complete. Also, plans and specifications for the first construction contract (relocations) have been completed. Generating units 1 and 2 were placed in commercial operation March 23 and February 4, 1964, respectively. Physical in-service date for flood control was November 29, 1963.

Freshets regulated by Cougar Lake on South Fork McKenzie River are shown on Table 28-K.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Refer to the Willamette River Temperature Control project write-up for additional information.

Local cooperation. None required.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Initiated remediation of hazardous materials discovered during construction of the temperature control structure. Capital improvements included

repair/replacement of exciters and main unit circuit breakers.

40. DETROIT LAKE - BIG CLIFF, OR

Location. On North Santiam River with dam 50 miles from mouth 40 miles southeast of Salem, OR. North Santiam River flows north and west for 85 miles, and unites with South Santiam River to form Santiam River, which 10 miles downstream enters Willamette River 108 miles above its mouth.

Existing project. Main dam and a re-regulating dam, both with power-generating facilities. Detroit Dam is a concrete gravity structure about 1,522 feet long and 454 feet high from lowest point of the general foundation to roadway deck. Spillway is a gate-controlled overflow section, and outlet works are gate-controlled conduits through dam. Powerhouse with two units having a capacity of 50,000 kilowatts each is in right abutment immediately below dam. Reservoir has a storage capacity at full pool of 454,900 acre-feet and controls runoff of tributary drainage area of 438 square miles. It is being operated as a unit in coordinated reservoir system to protect Willamette Valley from floods, to increase low water flows in interest of navigation and irrigation, to generate power, and for other purposes. Re-regulating dam 3 miles downstream at Big Cliff site is concrete gravity type, about 191 feet high from lowest point of the general foundation to roadway deck. Power installation consists of one unit with a capacity of 18,000 kilowatts. Reservoir has a storage capacity of 5,930 acre-feet at full pool. Project is a unit of comprehensive plan for flood control and other purposes in Willamette Basin. Recreation facilities are provided by the U.S. Forest Service, Oregon State Park System and the town of Detroit.

Construction of project begun in May 1947 was completed December 1960. The two powerhouse generating units were placed in commercial operation June and October 1953. At Big Cliff powerhouse, single generating unit was placed on-line June 1954. Use of Big Cliff Dam for re-regulating fluctuating flow from Detroit units was effective October 1953.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Freshets regulated by the Detroit Lake project on North Santiam River are shown in Table 28-K.

Local cooperation. None required.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Capital improvements included repair/replacement of main unit circuit breakers, and remote control modifications.

41.GREEN PETER-FOSTER LAKES, OR

Location. At approximate mile 5.5 on Middle Santiam River which joins South Santiam River about 56.8 miles above its confluence with Willamette River. Dam is about 30 miles southeast of Albany in Linn County, OR.

Existing project. Main dam and a re-regulating dam, both with power-generating facilities. Green Peter Dam is a concrete gravity structure, 1,400 feet long and 385 feet high above the lowest point of the general foundation with a gate-controlled spillway. Outlet works consist of two conduits through spillway, discharging into a stilling basin. Power plant, on right bank adjacent to spillway stilling basin, consists of two units with an installed capacity of 80,000 kilowatts. Reservoir provides storage capacity at full pool of 430,000 acre-feet, extending 6.5 miles up Quartzville Creek and some 7.5 miles up Middle Santiam River above creek junction, forming a Y-shaped pool. Reservoir controls runoff of tributary drainage area of 277 square miles.

Foster Dam, 7 miles downstream from Green Peter Dam is located on South Santiam River about 38 miles above its confluence with Santiam River and 1.5 miles below its confluence with Middle Santiam River. Foster Dam consists of an earth, gravel, and rock-filled embankment, 146 feet high from lowest point of the general foundation and a concrete gravity gate controlled spillway and stilling basin for a total length of 4,800 feet. Power installation consists of two units with capacity of 20,000 kilowatts. Foster Lake has a storage capacity, at full pool, of 61,000 acre-feet. Project functions as a unit in coordinated system of reservoirs for multiple-purpose development of water resources in Willamette River Basin.

All construction on Green Peter-Foster Lakes project initiated June 1961 is completed. Green Peter Lake was placed in operation for useful flood control June 1967 as a unit of coordinated reservoir system for protection of the Willamette River Basin. First power-generation unit was placed on the line June 9, 1967 and second, June 28, 1967. Use of Foster Lake for re-regulating fluctuating flows from Green Peter units was effective December 1967. First power generation unit was placed on-line August 22, 1968 and second, September 6, 1968.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Freshets regulated by Green Peter Lake project on Middle Santiam River are shown in Table 28-K.

Local cooperation. Future recreation development at Foster or Green Peter will require cost sharing. Recreation facilities at Foster Lake include 4 parks and 2 parks at Green Peter Lake. Five of these parks were developed by the Corps and are

operated by Linn County under lease agreement. One park is operated by the Corps.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Capital improvements included repair/replacement of main unit exciters.

42. HILLS CREEK LAKE, OR

Location. On the Middle Fork, Willamette River, 47.8 miles from mouth and 26.5 miles upstream from Lookout Point Dam. Middle Fork, Willamette River rises on west slope of Cascade Range and flows northwesterly to its junction with Coast Fork, Willamette River. Dam is about 45 miles southeast from Eugene, OR.

Existing project. An earth-and-gravel-fill dam about 2,150 feet long at the crest and 338 feet above lowest point of the general foundation. A gate-controlled concrete gravity chute-type spillway is in right abutment. Diversion tunnel, outlet tunnel and power tunnel are in same abutment. Powerhouse with two 15,000-kilowatt units is located next to spillway. Hills Creek Lake is about 8.5 miles long and provides storage capacity at full pool of 356,000 acre-feet. Project controls runoff of drainage area of 389 square miles and is an integral unit of comprehensive plan for development of water resources of Willamette River Basin. Hills Creek Lake and Lookout Point Lake are operated as a unit for control of floods and generation of power on Middle Fork Willamette River. These projects, in conjunction with Dexter re-regulating dam and Fall Creek Lake flood control system, will effectively control floods on Middle Fork and provide maximum efficient generation of hydroelectric power. The U.S. Forest Service provides recreation facilities. Hills Creek power units are remote controlled from Lookout Point.

Construction of project, initiated May 1956, was completed June 1963. The project was placed in service for useful flood control in November 1961. On May 2, 1962, the two power units were placed on-line.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Freshets regulated by Hills Creek Lake on Middle Fork Willamette River are shown in Table 28-K.

Local cooperation. None required.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Capital improvements included repair/replacement of main unit exciters.

43. JOHN DAY LOCK AND DAM – LAKE UMATILLA, OR AND WA

Location. On Columbia River about 3 miles downstream from mouth of John Day River and about 215 miles above mouth of Columbia River.

Existing project. A dam, power plant, navigation lock, fish ladders, and appurtenant facilities with a slack-water lake about 75 miles long extending to McNary Lock and Dam. Included is relocation of railroads, highways, utilities, and communities affected by the impoundment. The project as originally authorized would have provided 2,000,000 acre-feet of flood control storage. As modified, the project provides 500,000 acre-feet of flood control storage between elevations 257 and 268. The structure is 5,900 feet in length and stands about 161 feet above streambed. Powerhouse has space for 20 generating units of 135,000 kilowatts each; 16 units have been installed for a present capacity of 2,160,000 kilowatts. In 1998, synchronous condensing capability was added to four units. It was done to provide increased stability to the BPA transmission system. Principal project data are set forth in Table 28-N.

A detailed description of project as authorized and modified is on pages 1992 and 1993 of Annual Report for 1962 under the Walla -Walla District.

Construction began July 1958 and the project was opened to navigation April 1968. The main dam contract is complete. Lock rehabilitation work begun in FY 1980 was completed in FY 1986.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Local cooperation. Recreation facilities at 5 parks are operated and maintained by local agencies under lease agreement with the Corps. Six developed recreation areas are operated and maintained by the Corps of Engineers. Any future recreation development will require cost sharing.

Operations during fiscal year.. Maintenance: Routine operation and maintenance continued. Increased activities to protect and enhance the anadromous fisheries in the Northwest. These activities included removal of obstructions from turbine environments, rehabilitation of the adult auxiliary water pumps, and improvements to the debris removal system in the smolt monitoring facility. Major repairs on the navigation lock continued. Capital improvements included repair/replacement of exciters, generic data acquisition and control system, and powerhouse emergency battery system.

44. LOOKOUT POINT - DEXTER LAKES, OR

Location. On Middle Fork, Willamette River at Meridian site, 21.3 miles from mouth. Middle Fork, Willamette River, rises in Lane County on western

slope of Cascade Range and flows northwesterly to its junction with Coast Fork, which is head of mainstream Willamette River. Dam is about 22 miles southeast from Eugene, OR.

Existing project. A main dam at Meridian site and a re-regulating dam 3 miles downstream at Dexter site. Both dams are earth-and-gravel-fills with concrete spillways and have power generating facilities. Main dam is 258 feet high from lowest point of the general foundation to deck and is 3,381 feet long at crest forming a reservoir 14.2 miles long providing storage of 456,000 acre-feet at full-pool level. Reservoir controls runoff of tributary drainage area of 991 square miles. Spillway, 274 feet long, is a gate-controlled overflow type, forming right abutment. Outlet works consisting of slide-gate-controlled conduits pass through spillway section. Powerhouse has three main generating units with a capacity of 120,000 kilowatts. Dexter re-regulating dam has a maximum height of 107 feet above lowest point of the general foundation and is 2,765 feet long at crest, forming a full pool of 27,500 acre-feet extending upstream to main dam and providing pondage to regulate Lookout Point powerhouse water releases to a uniform discharge. Spillway consists of a gate-controlled overflow section 509 feet long forming right abutment.

Flow regulation is accomplished by use of spillway gates and releases through powerhouse, which contains one 15,000-kilowatt unit. Lookout Point and Dexter Lakes are operated as a single unit of a coordinated system of reservoirs to protect Willamette River Valley against floods; to provide needed hydroelectric power, and to increase low water flows for navigation, irrigation, and other purposes. Existing project authorized as a unit of comprehensive plan for flood control and other purposes in Willamette River Basin.

Construction of project initiated May 1947 was completed June 1961, except for construction of additional recreation facilities funded through the Code 710 programs. Future recreation facilities will be provided in accordance with the cost-sharing contract with Lane County and will require a 50 percent contribution by Lane County and is subject to funding availability by the Government and the County. At Lookout Point powerhouse, generating units 1,2, and 3 were placed in commercial operation December 1954, February 1955, and April 1955, respectively. At Dexter powerhouse the single unit was placed on-line May 1955. Dexter was placed in operation for re-regulation in December 1954.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration

Freshets regulated by Lookout Point Lake project on Middle Fork Willamette River are shown in Table 28-K.

Local cooperation. Recreation opportunities are provided at 2 parks on Dexter Lake, which are operated by Oregon State Parks via lease instruments. The north shore of Lookout Point Lake is operated by the COE for recreation purposes; including Signal Point Boat Ramp, which was developed cooperatively with the State of Oregon. Future development will not require a cost sharing agreement.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Capital improvements included replacement of main unit circuit and station service circuit breakers. Began installation of physical security systems.

45. LOST CREEK LAKE, ROGUE RIVER BASIN, OR

Location. On Upper Rogue River at mile 153.6 about 30 miles northeasterly from Medford, OR.

Existing project. A rock and gravel-fill embankment dam about 327 feet high from streambed to crest, with an overall length of 3,750 feet with an impervious earth core and a gate-controlled concrete spillway. Powerhouse is on right abutment and houses two Francis-type turbines with installed capacity of 24,500 kilowatts each. Regulating outlet facility with provisions for temperature regulation for releases in interest of fishery enhancement is also on right bank. Reservoir 10 miles long provides 315,000 acre-feet of usable storage. Project provides control of runoff of drainage area of 674 square miles. In addition to flood control, project provides hydroelectric power generation, irrigation, municipal and industrial (M&I) water supply, fish and wildlife enhancement, water quality control and recreation benefits.

Construction of project initiated July 1967 is complete. Generating units 1 and 2 were placed in commercial operation July 6 and July 13, 1977, respectively. Physical in-service date for flood control was February 18, 1977. Final environmental statement was filed with Council on Environmental Quality in June 1972. Four parks at the project provide recreation opportunities. The State of Oregon operates 2 parks, including a 200-unit campground, part of Stewart State Park.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration

Freshets regulated by Lost Creek Lake on Rogue River are shown in Table 28-K.

Local cooperation. Authorizing act required that local agencies furnish assurances prior to

construction that demands will be made for future use of water supply storage within a period that will permit repayment of costs, including interest, allocated to water supply within life of the project; that State of Oregon take action, prior to construction to insure maintenance in stream of flows to be released for fishery; in addition, costs allocated to irrigation would have to be repaid in manner and to an extent consistent with reclamation laws and policies; and costs allocated to power will be repaid on a system basis by revenue from sales of power in Pacific Northwest Federal system by Bonneville Power Administration. A survey in September, 1980 of M&I water supply needs showed nine communities with water supply needs. A contract for M&I supply has been completed with four of the communities. Assurances for municipal and industrial water supply were obtained from six communities in Rogue River Valley.

On February 26, 1966 Oregon State Department of Fish and Wildlife agreed to operate Cole M. Rivers Fish Hatchery for mitigation and enhancement of fish. The Corps provides full funding for the operation and maintenance of the hatchery. The hatchery became operational in 1972.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued.

46 THE DALLES LOCK AND DAM - LAKE CELILO, WA AND OR

Location. On Columbia River at head of pool behind Bonneville Dam, about 192 miles above mouth of river and 88 miles east of Portland, OR.

Existing project. A dam, power plant, navigation lock, and appurtenant facilities. Improvement provides for navigation and hydroelectric power generation. Dam is designed for a normal pool at elevation 160 feet at mean sea level. Normal pool forms a reservoir extending upstream about 23 miles providing slack water to John Day Dam site. The Dalles Dam is 8,700 feet long and consists of a rock, gravel, and sand river closure section from Oregon shore connecting to a non overflow section which in turn joins powerhouse, then concrete non overflow sections connecting spillway with powerhouse and spillway with navigation lock at right abutment on Washington shore. Fish-passing facilities including two ladders and a fish lock are provided. Powerhouse was constructed for 14 units initially with substructure for eight additional units, an ultimate total of 22 units. Initial installation, excluding two 13,500-kilowatt fish-water units, was 1,092,000 kilowatts. The total generating capacity with all units was 1,806,800 kilowatts. Structures are founded on Columbia River basalt.

Principal data concerning lock, spillway, and powerhouse are set forth in Table 28-N.

Major construction of project initiated February 1952, was completed October 1960 when unit No. 14 was placed in commercial operation. Initial contract for additional units 15-22 was awarded in September 1967. Additional 8-unit phase was completed when unit 22 was placed in commercial operation in November 1973. In 1998, synchronous condensing capability was added to six units. It was done to provided increased stability to the BPA transmission system.

Basic recreation facilities were developed with construction funds at 4 parks on Lake Celilo. These parks were further expanded with code 710 funds in the late 60's and early 70's. Washington State Park Commission operates two parks under a lease agreement.

Studies for adding power generation facilities to the North Shore Fish Ladder Auxiliary Water supply System were initiated in October 1979 and completed in December 1980. These facilities would provide base load generation (3.5 megawatts) and would not impact the present operation of the North Fish Ladder. However, it was determined that it was not within the Chief of Engineer's authority to add these power facilities. A local interest, North Wasco County Public Utility District pursued the construction of these power facilities through the FERC license processes and awarded a construction contract in September 1989.

Seufert Visitor Center was completed in September 1980.

In October 1996 work began on major rehabilitation of powerhouse units 1-14. Work includes rewind of nine generators, replacement of blades on twelve turbine units, refurbishment of blades on two turbine units, and refurbishment of two bridge cranes. The total cost for major rehabilitation is estimated at $101,000,000 with completion in September 2010.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Local cooperation. Further recreation development will require cost sharing and assumption of operation and maintenance by local, non-federal sponsor.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Performed increased activities to protect and enhance the anadromous fisheries in the Northwest. These activities included removal of obstructions from the turbine environment, repair of fish way entrance gates, and procurement of one-piece bulkheads. Replaced diffusion water gratings at the north fish ladder. Replaced station service generator #2 exciter, plus installed station service electronic governors and DC governor oil pump. Capital improvements

included repair/replacement of the generic data acquisition and control system, main unit circuit breakers, and powerhouse emergency battery system.

Major Rehabilitation: Continued generator rewind and exciter installation, initiated turbine efficiency testing and awarded roller gate contract.

Environmental

47. COLUMBIA RIVER FISH MITIGATION, OR AND WA

Location. At Bonneville, The Dalles, and John Day Dams on the Columbia River in the states of Oregon and Washington. This project encompasses work at five other locations within Walla Walla District.

Existing project. The eight Corps hydroelectric projects on the lower Columbia and Snake Rivers have been identified as a contributing factor in significantly reduced of runs of migrating salmon and steelhead. Ten stocks of salmon and steelhead that must pass through the project have been listed by NMFS as threatened or endangered under the Endangered Species Act. The Corps has recognized the need to reduce juvenile mortality and has undertaken measures that include fish bypass systems, surface bypass and barge and truck transportation. Spill, as an additional bypass route over the spillways, is being used to divert fish from entering turbine units, but it is a significant adverse economic factor due to forgone electric power generation. Congress passed and the President signed the FY 1989 Energy and Water Development Appropriations Act (PL 100-371), which mandated the expenditure of funds for the design, testing, and construction of new or improved fish bypass facilities for the Columbia River Juvenile Fish Mitigation projects. Completion of the bypass facilities will increase the survival of migrating downstream juvenile fish and potentially reduce reliance on spill. Mitigation studies will determine the overall scope of the juvenile and adult fish bypass facilities for these Columbia and Snake River dams.

The plan of improvement within Portland District includes the following: (a) Bonneville - new juvenile fish monitoring facilities, bypass system improvements, outfall relocation, surface bypass and spill improvement; (b) The Dalles – enhanced sluiceway guidance and spillway improvements, potential new surface bypass or screened bypass system; (c) John Day - new juvenile fish monitoring facility, spillway improvements, bypass system improvements and potential surface bypass; (d) mitigation studies to analyze long-term alternatives including impacts of federal Columbia River system and other activities on estuary habitat, surface bypass technology, gas abatement and improved turbine passage to improve fish passage and survival through Corps dams on the Columbia and Snake Rivers.

The current fully funded total estimated Federal project cost is $1,516,000,000 which includes improvements in Walla-Walla District, and in Portland District and $9,783,000 provided by the Bonneville Power Administration for design of the Bonneville juvenile fish monitoring facility and contributions to the construction of the monitoring facility at John Day Dam. For information on the planned improvements in the upper Columbia and Snake Rivers, see Walla Walla District's Annual Report.

Local cooperation. None required.

Operations during fiscal year. New work: General: Continued to collect biological and hydraulic data at all projects, and develop alternatives to improve existing anadromous fish bypass methodology and systems, to reduce excess dissolved gas entrainment associated with use of the spillways and to improve turbine passage survival.

Bonneville Dam: Completed bio evaluation of the surface collection facility and extended length screen prototype at the first powerhouse.

Continued evaluations of fish passage survival and bypass guidance improvements at the 2nd powerhouse. Continued construction of surface bypass (corner collector) system at the second powerhouse. Completed adult passage improvements and adult passage monitoring facilities.

The Dalles Dam: Initiated construction of spillway passage improvements. Completed construction of the adult south fish ladder channel dewatering facility. Continue survival, additional spillway and forebay guidance evaluations.

John Day Dam: Continued testing of extended length (40 ft.) bypass screens for potential replacement of existing 20 ft. screens associated with the existing juvenile bypass system. Completed construction of adult ladder improvements. Continued passage efficiency and survival studies.

48. WILLAMETTE RIVER TEMPERATURE CONTROL, OR

Location. At the Blue River and Cougar Lake projects in the McKenzie River sub-basin of the Willamette River basin in western Oregon.

Project Description. Work consists of retrofitting the intake tower structures with movable weir intakes to allow modification of water temperatures downstream from the Blue River and Cougar projects. Water temperatures are currently cooler in the spring/summer and warmer in the fall/winter than pre-project conditions. This has impacted the fish resources in the McKenzie sub-basin, especially

Willamette spring Chinook salmon and bull trout, both species of national and regional significance.

The total project is estimated to cost $72,000,000.

Local cooperation. None required.

Operations during fiscal year. New Work: In FY 03 the cofferdam was completed and concrete placement on the new tower was made from its base (at about elevation 1407) to elevation 1600, about 100 feet from the top of the new wet well.

49. LOWER COLUMBIA RIVER ECOSYSTEM RESTORATION

Location. The Lower Columbia River extends from the mouth of the Columbia River to river mile (RM) 145 at Bonneville Lock and Dam. The study areas include the estuary of the Columbia River and all of the tributaries of the Columbia River that are tidally influenced, which include the Willamette River up to Willamette Falls. The river divides the states of Oregon and Washington throughout this area.

Project Description. Section 536 of the Water Resources Development Act of 2000, Public Law 106-541. This program provides the authority to the Secretary to conduct studies and implement ecosystem restoration projects for the lower Columbia River and Tillamook Bay estuaries in Oregon and Washington. The projects will be for the protection, monitoring, and restoration of fish and wildlife habitat and are to have no adverse effect on specified water related needs or private property rights. Actions include protection and enhancement of 10,000 acres of tidal wetlands and other key habitats in the Columbia River estuary over 10 years, beginning in 2001, to rebuild productivity for listed salmon and steelhead populations. Operation and maintenance of projects is a non-Federal responsibility. Implementation costs of projects on Federal lands will be 100% Federal expense and the operations and maintenance will be the responsibility of the Federal agency that manages the lands.

Current year costs are shown in Table 28-A.

Local cooperation. Studies under Section 536 are subject to the cost sharing requirements of Section 105 of WRDA 1986, including studies on Federal lands. Projects implemented under Section 536 will be cost shared 35% Non-Federal and 65% Federal, and up to 50% of the non-Federal share of project implementation costs can be In-Kind services.

Operations during fiscal year. New Work: Activities included policy review and coordination, ecosystem restoration site identification, monitoring and coordination with local sponsors.

50. ENVIRONMENTAL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Modifications to Structures and Operations of Constructed Corps Projects to Improve the Quality of the Environment, Pursuant to Section 1135 of the 1986 Water Resources Development Act, Public Law 662, 99th Congress, as Amended. This program provides the authority to modify existing civil works projects to restore the environment. A non-federal entity is required to sponsor the project. The project must accomplish restoration by modifying a Corps project or operation of a Corps project, or be located on Corps project lands. The project must be feasible and consistent with the authorized purpose. The non-federal sponsor generally must assume responsibility of the operation and maintenance associated with the project.

Planning studies, detailed design, and construction costs are shared by the Corps 75 percent and non-federal sponsor 25 percent. Total project costs cannot exceed $6.7 million with the federal share limited to $5,000,000 without specific congressional authorization.

See Table 28-L for expenditures under Section 1135 during the fiscal year.

Four projects were under construction during fiscal year 2003.

Lower Columbia Slough, OR

Location: The project modification is located in the City of Portland, Oregon along the Columbia Slough

Project description: Columbia Slough represents a portion of the historic flood plain of the Columbia River extending about 20 miles eastward from the Willamette River to the Sandy River. In its natural state, the flood plain was unstable and the Columbia River seasonally inundated this area. A network of lakes, waterways and wetlands spread over the entire area. It was thickly forested along shorelines and low areas, and was also made up of wetland prairie and oak savannah, bordered by riparian forest. It supported vast populations of waterfowl and other birds, elk, deer, river otter and other smaller mammals. In the 150 years since the first settlers began to adapt the flood plain to their own uses, the area has been transformed from a natural system of lakes, sloughs, and wetlands into a highly managed water system of levees and pumps to provide drainage and flood damage reduction. The project modifies channel and culvert conditions in the Columbia Slough, creates wetlands and restores portions of the riparian buffer/wildlife corridor along the slough. Specific actions include creation of wetland benches/islands along 7.5 miles of the slough replacement of 5 culverts within the slough system, and restoration of approximately 14 acres of riparian and open water habitat.

Local cooperation: The City of Portland signed a Project Cooperation Agreement (PCA) for the project on 28 September 2001.

Operations during fiscal year: Portions of the wetland bench construction were completed under a Cooperative Agreement with the Multnomah County Drainage District No. 1.

Fern Ridge Marsh, OR

Location: This project modification is located at the Fern Ridge Lake project on the Long Tom River, a Tributary of the Willamette River approximately 6 miles west of Eugene, Oregon.

Project description: The Fern Ridge Marsh Restoration Project entails marsh restoration and management actions on 347 acres in the western portion of the Fisher Butte Management Unit (West Fisher Butte sub-unit) at Fern Ridge Lake Project. The restoration will restore and provide for management of 347 acres of marsh habitat via construction of 7 water control structures, 15,900 lineal feet of dikes and rock dikes (carp excluders) within the drawdown zone of Fern Ridge Lake Project. The general intent of the proposed action is the restoration of a more diverse and productive marsh plant and wildlife community in areas currently dominated by reed canary grass. This species is an exotic plant found in extensive stands in shallow water areas around the reservoir perimeter. The total project cost, including lands, is estimated at approximately $540,000.

Local cooperation: The Oregon Department of Fish and Wildlife signed a local cooperation agreement for the project on July 19, 1999.

Operations during fiscal year: Construction continued from FY02. Activities included disking/tillage for reed canary grass, installation of a water supply line, and additional rock placement on carp excluding barriers.

Fox Creek, OR

Location: This project is located in the city Rainier, Oregon at the mouth of Fox Creek. Fox Creek enters the Columbia River at river mile 67+20.

Project description: The Fox Creek project modifies a dredged material disposal site associated with the Federal Navigation Channel. Flows from Fox Creek were routed through a 72–inch culvert during routine O&M maintenance dredge material disposal actions in 1985. Dredged material was then placed over the culvert. The project modification consists of excavating the dredged material from the former streambed (approximately 535 feet) and restoration of the creek to its approximate former course and gradient. Additionally, reed canary grass was removed over approximately 200 feet of the existing stream channel upstream of the dredged material disposal site. Native riparian trees will be planted along the entire length of the project.

Local Cooperation: The City of Rainier signed a Project Cooperation Agreement on 16 August 2001.

Operations during fiscal Year: No construction activities were performed during FY 2003. Re-vegetation activities will be completed in FY 2004.

Lower Amazon Creek Wetlands Restoration, OR

Location: This project modification is located along Amazon Creek at the western edge of the city of Eugene, Oregon. Amazon Creek is a major drainage channel for Eugene, conveying flows into the Long Tom River, a tributary of the Willamette River.

Project description: Prior to settlement in the 1850's, seasonal wet prairie habitat dominated the landscape of the lower Amazon Creek basin and much of the Willamette Valley. Since then, nearly all of this wetland type has been lost to agriculture and urban uses. The Amazon Creek Flood control Project built by the Corps in the 1950's further degraded the wetland hydrology when the creek and connecting drainages were canalized and lined with levees. It is estimated that less than one percent of the Willamette Valley's historic wet prairies remains today. The lower Amazon Creek Wetlands Project will restore the historic hydrology and vegetation community to almost 400 acres of wet prairie. All of the land within the project area is owned by the City of Eugene and BLM, having been acquired for wetland protection and restoration purposes. The total project cost, including lands and recreation facilities, is estimated at approximately $6.2 million.

Phase I involved removing existing levees along Amazon Creek and associated drainages and restoring the channels more natural meandering stream configurations. New levees were set back around the margin of the wetland restoration area to maintain the flood control function of the project. Interior wetland areas will now be subject to the high frequency flooding that occurred prior the flood control project. The new levees were seeded with a combination of native upland grass species. A slotted weir was constructed to maintain the complex flow relationship between the connected channels. Culverts, some gated, will also be installed to maintain drainage and to allow manipulation of surface hydrology for wetland management purposes. Disturbed areas along the stream channels and the old levee footprints will be seeded and planted with native wet prairie, emergent marsh and vernal pool species. The total cost for this completed in 1999 was $2.0 million.

Phase II involves removal of non-native plant materials on about 120 acres of wetlands and replacement with native wet prairie plants. A major portion of this effort has been the collection and propagation of native plants and seeds. Phase II also includes modification of surface hydrology through filling and restoration of old agricultural drainage channels draining into Amazon Creek. Phase II was initiated in 2000 and will continue through 2003.

Phase III construction of recreation facilities was initiated in Summer 2002 and completed in March 2003. Facilities included access points, viewing structures, interpretive displays and trails.

Local cooperation: The City of Eugene signed a Project Cooperation Agreement (PCA) for the project on October 26, 1998. The Bureau of Land Management under its West Eugene Wetlands Project also supports the project. In 1999 the City of Eugene requested that the agreement be modified to include the addition of recreation facilities in accordance with recent Corps guidance. The modified PCA was signed in Spring 2001

Operations during fiscal year: New Work: Phase I was completed in November 1999. Continue construction of Phase II. Phase II construction is to be completed in FY 04.

Restoration and Protection of Aquatic Ecosystems to Improve the Quality of the Environment, Pursuant to Section 206 of the Water Resources Development Act of 1996, Public Law 303, 104th Congress, as Amended. In addition to general requirements, each project is limited to a Federal statutory expenditure of not more than $5,000,000 per year. The non-Federal share of the costs shall be 35 percent, however, the entire non-Federal share of the total project cost may be credited work-in-kind.

See Table 28-L for expenditures under Section 206 during the fiscal year.

East Birch Creek

Location: This project modification is located along an approximately 1-mile reach of East Birch Creek between river miles 8.0 and 9.5 (river km 12.9 and river km 15.2) in Umatilla County, Oregon approximately 8 miles (12.9 km) south of the town of Pilot Rock. East Birch Creek is a fork of Birch Creek, a headwater tributary of the Umatilla River, which empties into the Columbia River.

Project description: Historically, this reach was an important spawning and rearing area for summer run steelhead trout. The Umatilla stock of summer steelhead was designated part of the Mid-Columbia Evolutionarily Significant Unit (ESU) by National Marine Fisheries Service (NMFS) when it listed that stock as "Threatened" under the Endangered Species Act. Land use practices and channel modifications have resulted in physical changes that have degraded habitat quality to a considerable extent. Habitat degradation has resulted primarily from removal of riparian vegetation, disruption of natural geomorphic processes, alteration of stream flows and increased sediment input. Bioengineering techniques are being utilized to the extent practicable to restore salmonid habitat quality, reduce unnatural bank erosion, restore natural channel function, and associated aquatic and riparian biological processes in East Birch Creek. This approach involved development of plans for erosion resistant stream restoration treatments using primarily natural fluvial processes and natural materials. The riparian zone, essential for aquatic ecosystem restoration, has been re-vegetated with native species.

The other primary goal of the environmental restoration work is to restore geomorphic function of the channel, which will generally mean a narrower, deeper, more meandering channel with more stable, vegetated banks and more diverse instream habitat. This will result in a self-maintaining system that meets specific habitat needs of ESA listed summer steelhead. Summer steelhead uses the proposed project reach for spawning and rearing, therefore, our restoration plan will be based largely on habitat requirements for these life stages.

Local cooperation: Oregon Department of Fish and Wildlife signed a Project Cooperation Agreement (PCA) for the project on 16 August 2001.

Operations during fiscal year: Conducted additional construction in November, 2002 after observation of project functioning after the Spring 2002 run-off period. This showed that many of the river stabilization structures had not performed as designed and caused sediment deposition, erosion and higher than expected bank full levels in some areas. The repair work involved some realignment and/or raising or lowering key boulders in some of the river training structures. Some re-sloping and/or lowering of the thalweg were also required. After the spring run-off of 2003, the sponsor proposed some additional modifications to the project as betterments. NWW authorized the sponsor to conduct the betterments late in FY 2003 to be constructed in early FY 2004.

General Investigation

51. SURVEYS

Fiscal year costs were $905,055 of which $411,692 was for Special Studies, $126,805 for Comprehensive Studies, $243,761 for Miscellaneous Activities, and $122,798 for Coordination With Other Agencies. Contributed funds in the amount of

$127,732 were expended, $50,000 was contributed for the Planning Assistance to States Program and $149,572 was contributed by Tillamook County for the Tillamook Ecosystem Restoration Study.

52. COLLECTIONS AND STUDY OF BASIC DATA

Flood Plain Management Services. Flood Plain Management Services Program comes under Section 206 of the 1960 Flood Control Act, PL 86-645, as amended. Through technical services and planning guidance, the program encourages comprehensive flood plain management planning at all levels to reduce the potential for losses to life and property from floods. Federal and non-Federal agencies and the private sector are assisted with planning and development information for flood hazard areas. This assistance is in the form of local flood plain regulations, Federal Insurance Program requirements, and Executive Order 11988 guidelines. Such assistance may include factual flood information (available or determined) and interpretation on flood frequencies, extent of flooding, floodwater velocity, duration of flooding and floodway limits.

Fiscal year costs totaling $103,759 were associated with the following tasks under the Flood Plain Management Services Program: FPMS Unit $43,146; Technical Services $33,574 Quick Responses $3,578; and special studies $23,461.

Hydrologic Studies: Crest stage gages were constructed and installed on streams in an ongoing program to record data from flood events. Fiscal year costs were $11,408 to build 80 gages.

Other

53. FLOOD CONTROL AND COASTAL EMERGENCIES

Disaster Preparedness Program. This program encompasses all activities associated with preparing, responding to and recovering from natural disasters. It also provides for man-caused disaster planning. It includes publishing plans and procedures, establishing and training response teams, exercising plans and teams, and coordinating with Federal, state and local agencies. This program maintains response supplies and equipment used to supplement state and local requests for assistance. Significant activities for FY 2003: Flood Response Team trained. Sector Engineers completed county flood assessments of 5 counties. Crisafulli Pumps were overhauled. A new Emergency Communication plan was approved and exercised with new VHF hand held radios. An alternate Emergency Operation Center was designated and furnished with a fixed satellite phone system. Debris Management Team was fully staffed and trained. Two Contracting Division employees were recruited with the added responsibility in their job descriptions of being on the "Debris Team". Rapid Response Vehicle engaged by USCG and Navy for operation "Waterwatch" to provide command and control of security for Portland Rose Festival ships. Oregon Emergency Management Association elected the Chief, EMB as President Elect, providing greater access to all levels of government for coordination and planning. The Association of Oregon Counties and Oregon Chapter of the American Public Works Association continued to provide venues for outreach. Oregon Federal Executive Board selected Chief, EMB as Chair, Emergency Preparedness Committee, providing a broader network of ideas into District planning and closer coordination with the Federal Emergency Management Agency. The EPC provides workshops, exercises and training designed to help Federal executives recognize and prepare for emergencies/disasters.

Public Law 84-99 Response. FY 2003 was a dry and mild year. There were no requests for flood assistance, nor requests for drought assistance.

Public Law 84-99 Recovery. Clatsop #9 tide box rehabilitation effort continued through FY 2003. Replacement of the emergency-temporary tide box that had been placed in December 2000 was stopped by contracting complications and environmental coordination issues with NOAA Fisheries. As such, the District set a precedence for PL 84-99 rehabilitation by entering into a Cooperative Agreement with the public sponsor. The Task Order funds their manufacture and placement of the tide box by June 2004.

Public Law 93-288 Assistance to FEMA. From December 10, 2002 - January 15, 2003, eight members of the Portland District Debris Team worked in Guam in response to Super Typhoon Pongsona. This was the first Debris team to respond to the disaster. The team successfully set up contracts and field actions to begin the recovery process. By the time the team departed for home, an estimated 50,000 cubic yards of debris had been removed, and the debris removal, recycling and disposal process was in full production. Subsequent Corps Debris Teams completed the recovery process.

Continuing Eligibility Inspections. The district completed all inspections of Federal and non-Federal Flood Control Works. Kaiser Oregon Levee was added to the Inspection of Completed Works and Prineville Channel was added to the non-Federal Inspection Program

Catastrophic Disaster Response Planning. In FY 2003, funding under O&M, General, Appropriation 3123, was discontinued for this effort. Earthquake planning for district continuity of operations and receipt of FEMA recovery mission

assignments continued under the Disaster Preparedness Program.

Emergency Work in Support of Other Federal Agencies. Portland District provided FFE support to the Department of Defense for operations in support of Enduring Freedom/Noble Eagle/CEGRD. The district conducted recruitment, pre-deployment training, preparation for overseas movement (appropriate deployment forms, medical examinations, etc.) for 40 volunteers, and coordinated the re-deployment activities for all returning volunteers.

TABLE 28-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep 30, 2003
1.	Chetco River, OR	**New Work**					
		Approp.	---	---	---	---	2,043,713 [1]
		Cost	---	---	---	---	2,043,713 [1]
		Maint.					
		Approp.	424,000	520,065	352,000	359,000	11,895,738
		Cost	423,401	520,428	352,369	359,242	11,895,577
2	Columbia and Lower Willamette Rivers Below Vancouver, WA and Portland, OR	**New Work**					
		Approp.	---	---	---	---	28,349,304 [2]
		Cost	---	---	---	---	28,349,304 [2]
		Maint.					
	(Federal Funds)	Approp.	18,265,000	18,336,413	16,686,000	17,447,000	477,237,259 [3]
		Cost	18,228,597	17,071,417	17,822,000	17,634,455	477,271,411 [3]
	(Contributed Funds)	**New Work**					
		Contrib.	---	---	---	---	665,954 [4]
		Cost	---	---	---	---	665,954 [4]
3.	Columbia River at Baker Bay, WA	**New Work**					
		Approp.	---	---	---	---	941,252
		Cost	---	---	---	---	941,252
		Maint.					
		Approp.	1,071,000	2,994	24,000	736,000	6,508,081
		Cost	1,070,716	2,997	24,297	735,998	6,507,749
4	Columbia River Between Chinook, WA, and Head of Sand Island	**New Work**					
		Approp.	---	---	---	---	220,283 [5]
		Cost	---	---	---	---	220,283 [5]
		Maint					
		Approp.	741,000	5,987	31,000	877,000	9,565,864
		Cost	741,561	5,991	31,052	864,229	9,552,959
5.	Columbia River at The Mouth, OR and WA	**New Work**					
		Approp.	---	---	---	---	24,913,661 [6]
		Cost	---	---	---	---	24,913,661 [6]
		Maint.					
		Approp.	7,133,000	6,829,081	10,820,000	8,466,000	199,450,434 [7]
		Cost	7,113,210	6,817,980	10,843,698	8,472,587	199,450,434 [7]
		Major Rehab.					
		Approp	---	---	---	---	7,322,878
		Cost	---	---	---	---	7,322,878
6.	Columbia River Between Vancouver, WA and The Dalles, OR	**New Work**					
		Approp.	---	---	---	---	5,989,509 [8]
		Cost	---	---	---	---	5,989,509 [8]
		Maint					
		Approp.	578,000	674,232	324,000	262,000	17,033,591 [9]
		Cost	570,010	683,886	323,510	262,537	17,033,379 [9]
7.	Columbia River Channel Improvements, OR	**New Work**					
	(Federal Funds)	Approp.	---	2,530,000	-143,200	1,348,000	3,734,800
		Cost	---	851,228	1,271,068	1,591,166	3,713,462
	(Contributed Funds)	**New Work**					
		Contrib	---	300,000	415,200	640,333	1,355,533
		Cost	---	---	401,842	284,925	911,026

TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep 30, 2003
8.	Coos Bay, OR	**New Work**					
	(Federal Funds)	Approp.	---	---	---	---	37,866,092 [10]
		Cost	---	---	---	---	37,866,092 [10]
		Maint					
		Approp.	4,647,000	3,634,089	4,852,000	3,867,000	131,589,007 [11]
		Cost	4,649,648	3,646,226	4,845,709	3,874,056	131,588,594 [11]
		Major Rehab					
		Approp.					2,335,966
		Cost					2,335,966
	(Contributed Funds)	**New Work**					
		Contrib	---	--	---	---	3,986,680
		Cost	49,739	5,933	---	---	3,917,729
9.	Coquille River, OR	**New Work**					
		Approp.	---	---	---	---	693,366 [12]
		Cost	---	---	---	---	693,366 [12]
		Maint.					
		Approp.	133,000	256,320	238,000	326,000	9,908,307 [13]
		Cost	130,982	257,705	238,463	326,172	9,908,197 [13]
10.	Depoe Bay, OR	**New Work**					
		Approp	---	---	---	---	367,364
		Cost	---	---	---	---	367,364
		Maint.					
		Approp.	233,000	362,219	-2,000	504,000	2,854,936
		Cost	231,484	119,624	242,275	503,643	2,854,267
11.	Port Orford, OR	**New Work**					
		Approp	---	---	---	---	758,692 [14]
		Cost	---	---	---	---	758,692 [14]
		Maint.					
		Approp.	446,000	553,490	590,000	561,000	9,331,707
		Cost	430,018	551,345	610,570	560,418	9,331,066
12.	Rogue River Harbor	**New Work**					
	At Gold Beach, OR	Approp.	---	---	---	---	4,156,252 [15]
		Cost	---	---	---	---	4,156,252 [15]
		Maint.					
		Approp.	557,000	793,622	704,000	415,000	21,756,016 [16]
		Cost	563,828	794,022	704,083	415,730	21,755,917 [16]
		Major Rehab					
		Approp.	---	---	---	---	635,783
		Cost	---	---	---	---	635,783
13.	Siuslaw River, OR	**New Work**					
	(Federal Funds)	Approp.	---	---	---	---	29,502,212 [17]
		Cost	---	---	---	---	29,502,212 [17]
		Maint.					
		Approp.	297,000	572,232	598,000	425,000	19,154,616 [18]
		Cost	291,933	575,993	598,775	414,882	19,143,922 [18]
		Major Rehab					
		Approp.	---	---	---	---	879,285
		Cost	---	---	---	---	879,285
	(Contributed Funds)	**New Work**					
		Contrib.	---	---	---	---	493,611
		Cost	---	---	---	---	493,611
14.	Skipanon Channel, OR	**New Work**					
		Approp.	---	---	---	---	280,854
		Cost	---	---	---	---	280,854
		Maint.					
		Approp.	291,933	21,622	15,000	185,000	5,637,686
		Cost	1,272,419	21,729	15,485	184,442	5,636,920

TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep 30, 2003
15.	Tillamook Bay and Bar, OR	**New Work**					
		Approp.	---	---	---	---	22,434,827 [19]
		Cost	---	---	---	---	22,434,827 [19]
		Maint.					
		Approp.	297,000	68,682	174,000	227,000	7,572,764 [20]
		Cost	292,250	73,715	174,290	226,580	7,572,297 [20]
		Major Rehab.					
		Approp	---	---	---	---	2,839,799
		Cost	---	---	---	---	2,839,799
16.	Umpqua River, OR	**New Work**					
		Approp.	---	---	---	---	17,718,877 [21]
		Cost	---	---	---	---	17,718,877 [21]
		Maint.					
		Approp.	716,000	698,944	769,000	588,000	37,377,037
		Cost	707,546	707,546	705,899	588,445	37,421,858
		Major Rehab.					
		Approp.	---	---	---	---	2,500,677
		Cost	---	---	---	---	2,500,677
17.	Willamette River at Willamette Falls, OR	**New Work**					
		Approp.	---	---	---	---	520,005 [22]
		Cost	---	---	---	---	520,005 [22]
		Maint.					
		Approp.	552,000	1,334,346	201,000	188,000	26,615,364 [23]
		Cost	553,632	1,336,313	175,897	208,029	26,609,133 [23]
		Minor Rehab					
		Approp	---	---	---	---	234,794
		Cost	---	---	---	---	234,794
18.	Yaquina Bay and Harbor, OR	**New Work**					
		Approp.	---	---	---	---	19,242,046 [24]
		Cost	---	---	---	---	19,242,046 [24]
		Maint					
		Approp.	644,650	8,681,023	1,307,000	1,159,900	62,374,331 [25]
		Cost1	639,447	8,685,547	1,307,962	1,160,484	62,374,111 [25]
		Major Rehab.					
		Approp.	---	---	---	---	12,005
		Cost	---	---	---	---	12,005
19.	Yaquina River, OR	**New Work**					
		Approp.	---	---	---	---	28,800
		Cost	---	---	---	---	28,800
		Maint					
		Approp.	---	---	---	30,000	1,463,694 [51]
		Cost	913	---	---	29,511	1,463,694 [51]
23.	Applegate Lake, Rogue River Basin OR	**New Work**					
		Approp.	---	---	---	---	91,642,489
		Cost	---	---	---	---	91,642,489
		Maint.					
		Approp.	837,800	837,800	907,829	750,000	13,631,136 [48]
		Cost	825,496	825,496	910,720	761,461	13,615,399 [48]
24.	Blue River Lake, OR	**New Work**					
		Approp.	---	---	---	---	32,038,225 [26]
		Cost	---	---	---	---	32,038,225 [26]
		Maint.					
		Approp.	192,000	284,286	244,324	233,000	5,631,909 [53]
		Cost	201,315	282,333	244,588	235,484	5,631,632 [53]

TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep 30, 2003
25.	Cottage Grove Lake, OR	**New Work**					
		Approp.	---	---	---	---	4,013,123 [27]
		Cost	---	---	---	---	4,013,123 [27]
		Maint.					
		Approp.	941,000	884,024	900,864	934,000	20,839,176 [28]
		Cost	959,180	973,314	889,636	931,128	20,811,131 [28]
26.	Dorena Lake, OR	**New Work**					
		Approp.	---	---	---	---	14,568,262 [29]
		Cost	---	---	---	---	14,568,262 [29]
		Maint.					
		Approp.	562,200	636,753	684,208	551,000	13,893,621 [55]
		Cost	570,537	627,887	668,956	567,601	13,882,643 [55]
27.	Elk Creek Lake, Rogue River Basin, OR	**New Work**					
		Approp.	454,000	486,000	439,200	788,000	111,566,779
		Cost	413,224	632,808	461,922	767,229	111,544,949
28.	Fall Creek Lake, OR	**New Work**					
		Approp.	---	---	---	---	22,118,264 [30]
		Cost	---	---	---	---	22,118,264 [30]
		Maint.					
		Approp.	583,200	634,669	485,459	513,000	13,189,999
		Cost	595,746	620,967	470,291	537,442	13,184,557
29.	Fern Ridge Lake, OR	**New Work**					
	(Federal Funds)	Approp.	---	---	---	---	8,685,635 [31]
		Cost	---	---	---	---	8,685,635 [31]
		Maint.					
		Approp.	1,054,000	1,248,254	1,040,033	1,832,000	28,666,185 [32]
		Cost	1,060,382	1,238,638	1,029,560	1,815,437	28,625,339 [32]
	(Contributed Funds)	**New Work**					
		Contrib.	---	---	---	---	52,666
		Cost	---	---	---	---	52,666
30.	Lower Columbia River Basin	**New Work**					
	Bank Protection, OR & WA	Approp.	322,000	95,000	-30,000	49,000	21,589,745
	(Federal Funds)	Cost	9,624	348,554	31,749	46,455	21,582,171
	(Contributed Funds)	**New Work**					
		Contrib.	104,250	3,000	---	---	117,450
		Cost	6,635	107,999	---	---	114,634
31.	Mt. St. Helens	**New Work**					
	Sediment Control, WA	Approp	840,000	619,000	414,000	171,900	114,072,900
	(Federal Funds)	Cost	707,866	787,199	435,739	170,403	114,071,248
	(Contributed Funds)	**New Work**					
		Contrib.	---	---	---	---	3,703,112
		Cost	---	---	---	---	3,703,112
		Maint.					
		Approp.	227,000	234,329	245,000	227,000	5,206,429
		Cost	224,989	234,554	245,576	228,304	5,205,995
32.	Willamette River	**New Work**					
	Basin Bank Protection, OR	Approp.	---	20,000	-3,000	10,000	24,998,816 [33]
		Cost	---	7,008	9,183	---	24,987,516 [33]
		Maint					
		Approp	209,000	77,387	43,000	56,000	6,084,096
		Cost	120,425	167,451	44,417	55,434	6,083,104

TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep 30, 2003
33.	Willow Creek Lake, OR	**New Work**					
		Approp.	---	---	---	---	37,260,114
		Cost	---	---	---	---	37,260,114
		Maint.					
		Approp.	608,000	617,611	654,000	627,000	9,915,662
		Cost	607,151	557,682	659,285	673,076	9,899,640
37.	Bonneville Lock and Dam - Lake Bonneville OR and WA	**New Work**					
		Approp.	-659	---	---	188	789,836,529 [34]
		Cost	8,972	-188	-188	---	789,836,153 [34]
		Maint.					
		Approp.	17,814,100	19,290,560	21,447,907	27,676,000	402,184,330 [35]
		Cost	17,744,149	18,959,801	21,040,950	21,647,063	395,014,259 [35]
		Major Rehab.					
		Approp.	16,864,731	8,208,000	10,118,000	8,520,102	104,000,437
		Cost	15,281,432	10,193,680	10,221,967	8,534,047	103,990,310
38.	Columbia River Treaty Fishing Access Sites, OR & WA	**New Work**					
		Approp.	6,717,000	7,775,498	2,114,800	5,598,000	45,905,819
		Cost	6,466,146	8,416,757	2,190,119	5,578,458	45,880,507
39.	Cougar Lake, OR	**New Work**					
		Approp.	---	---	---	---	58,636,393 [36]
		Cost	---	---	---	---	58,636,393 [36]
		Maint					
		Approp.	1,027,400	1,614,484	2,200,964	2,288,000	30,704,244 [49]
		Cost	1,055,993	1,605,927	1,951,267	2,288,127	30,643,597 [49]
40.	Detroit Lake - Big Cliff, OR	**New Work**					
		Approp.	---	---	---	---	62,729,698
		Cost	---	---	---	---	62,729,698
		Maint.					
		Approp.	2,600,000	2,819,555	3,113,949	3,492,000	60,374,311
		Cost	2,637,380	2,732,293	3,075,413	3,505,930	60,255,320 [47]
		Minor Rehab					
		Approp	---	---	---	---	363,086
		Cost	---	---	---	---	363,086
41.	Green Peter-Foster Lakes, OR	**New Work**					
		Approp.	---	---	---	---	84,005,788 [37]
		Cost	---	---	---	---	84,005,788 [37]
		Maint.					
		Approp.	3,154,800	3,295,742	4,003,055	3,818,000	64,034,900 [38]
		Cost	3,170,392	3,295,016	3,948,048	3,855,832	63,983,436 [38]
42.	Hills Creek Lake, OR	**New Work**					
		Approp.	---	---	---	---	45,700,619
		Cost	---	---	---	---	45,700,619
		Maint.					
		Approp.	808,100	832,123	970,569	1,040,000	19,399,067 [39]
		Cost	811,394	826,210	968,365	1,048,412	19,396,547 [39]
43.	John Day Lock and Dam - Lake Umatilla, OR and WA	**New Work**					
		Approp.	---	---	---	---	512,400,246 [40]
		Cost	---	---	---	---	512,400,246 [40]
		Maint.					
		Approp.	15,485,150	16,979,308	21,070,850	30,303,000	317,122,535 [41]
		Cost	14,710,742	17,186,555	19,113,152	28,475,227	312,595,765 [41]
		Major Rehab.					
		Approp.	---	---	---	---	44,005,128 [54]
		Cost	---	---	---	---	44,005,128 [54]

TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep 30, 2003
44.	Lookout Point - Dexter Lakes, OR	**New Work**					
		Approp.	---	---	---	---	88,238,395 [42]
		Cost	---	---	---	---	88,238,395 [42]
		Maint.					
		Approp.	4,245,000	4,773,721	8,777,641	5,893,000	111,001,394 [43]
		Cost	4,276,796	4,738,797	5,737,002	5,678,136	107,676,890 [43]
45.	Lost Creek Lake, Rogue River Basin, OR	**New Work**					
		Approp.	---	---	---	---	136,408,150
		Cost	---	---	---	---	136,408,150
		Maint					
		Approp.	4,254,100	4,089,723	4,164,000	4,422,000	77,155,741 [44]
		Cost	4,228,512	4,114,768	4,098,296	4,274,670	76,892,402 [44]
46.	The Dalles Lock and Dam - Lake Celilo, WA and OR	**New Work**					
		Approp.	---	---	---	---	303,260,288 [45]
		Cost	---	---	---	---	303,260,288 [45]
		Maint.					
		Approp.	12,538,500	13,629,620	16,437,131	19,666,000	275,922,921 [46]
		Cost	12,313,384	13,418,117	15,640,043	16,761,971	271,700,695 [46]
		Major Rehab.					
		Approp.	4,272,000	8,806,000	5,933,900	1,344,000	32,445,900
		Cost	4,171,644	9,187,001	5,891,047	1,414,750	32,444,973
47.	Columbia River Fish Mitigation, OR and WA	**New Work**					
		Approp.	31,625,000	39,511,000	41,892,000	60,958,887	398,431,887 [52]
		Cost	39,759,406	39,511,000	41,892,000	60,958,125	398,282,623 [52]
49.	Willamette River Temperature Control, OR	**New Work**					
		Approp.	3,181,000	10,396,000	11,392,300	8,361,100	33,330,400
		Cost	2,227,934	10,810,587	11,860,603	8,351,202	33,250,326
50.	Lower Columbia River Ecosystem Restoration	**New Work**					
		Approp.	---	---	---	482,000	482,000
		Cost	---	---	---	476,124	476,124

Footnotes:

1. Excludes $17,742 contributed funds for new work.
2. Includes $1,529,413 for previous project.
3. Includes $150,955 allotted from deferred maintenance funds, Code 700, $62,296 for public works accelerated program repair, and $1,214,865 for previous project. Excludes $24,320 expended from contributed funds prior to 1964.
4. Excludes $31,636 contributed by city of Astoria and Bumble Bee Sea Foods, Astoria, OR (not part of regular project). Includes $223,026 expended from contributed funds prior to 1964 and $428,136 contributed by Port of Portland and $14,792 by Port of Vancouver.
5. Includes $84,930 rehabilitation funds.
6. Includes $1,986,253 for previous project and $608,111 allotted and expended under Code 710, recreation facilities at completed project. Excludes $500,000 contributed funds.
7. Includes $2,186,000 for previous project and $1,188,625 under deferred maintenance, Code 700.
8. Includes funds under Code 721 (small authorized projects) $30,393. Entrance to Oregon slough; $161,897, Camas-Washougal Turning Basin; $227,908, Hood River Small Boat Basin; $157,470, Bingen, WA, Barge Channel; and $140,619, The Dalles Small Boat Basin.
9. Includes $2,033,408 under code 700 (Deferred Maintenance).
10. Includes $802,096 for previous project. Excludes contributed funds.
11. Includes $178,801 for previous project and $1,444,640 under Code 700, Deferred Maintenance. Excludes $8,387 contributed funds.
12. Includes $340,726 for previous project. Excludes $72,891 contributed funds. Includes $36,000 under Code 711.
13. Includes $41,467 for previous project and $78,500 under Code 700, Deferred Maintenance.
14. Excludes $9,900 contributed funds.
15. Excludes $13,779 (other funds) contributed for additional landfill and extension of drainage lines.
16. Includes $21,000, Wedderburn Study Funds.
17. Includes $1,159,357 for previous project.
18. Includes $10,611 for previous project and $188,000 under code 700, Deferred Maintenance.
19. Includes $77,209 for previous project and $57,767 under Code 720 (Small Authorized Projects) Garibaldi Boat Basin. Excludes $592,622 contributed funds and $300,000 channel dredging by local interest.
20. Includes $71,498 for previous project. Excludes $6,450 expended from contributed funds.

TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep.30, 2003

Footnotes (Cont'd)

21. Includes $39,242 for previous project. Excludes $6,450 expended from contributed funds.
22. Excludes $300,000 contributed funds.
23. Includes $452,110 on operation and care from permanent indefinite appropriation and $150,000 under maintenance and operation of dams and other improvements of navigable waters.
24. Includes $707,313 for previous project and $170,000 appropriated from public works acceleration program for north jetty rehabilitation.
25. Includes $6,026 for previous project.
26. Includes $96,000 pro rata share of site selection costs in lieu of Quartz Creek Lake.
27. Includes $1,639,828 allotted and expended under Code 710, recreation facilities at completed project.
28. Includes $167,878 special recreation use fees. Includes $201,262 under maint. and operation of dams and other improvements to navigable waters.
29. Includes $1,038,790 allotted and expended under Code 710, recreation facilities at completed project.
30. Includes $1,026,264 allotted and expended under Code 710, recreation facilities at completed project.
31. Includes $3,894,673 allotted and expended under Code 710, recreation facilities at completed project and $136,482 allotted under 721 (small authorized project) reservoir modification. Excludes $2,100 (other funds contributed).
32. Includes $9,750 allotted under Code 700, deferred maintenance. Includes $241,678 under maintenance and operation of dams and other improvements to navigable waters.
33. Excludes $93,733 contributed funds.
34. Includes $12,200,000 Public Works Administration funds, $20,240,700 National Recover Act Funds, $27,195,400 modification for peaking funds, $136,457 Code 710, recreation facilities at completed project funds and $6,000 power units funds.
35. Includes $540,000 deferred maintenance funds, Code 700 and $1,692,148 maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
36. Includes $96,000 pro rata share of site selection costs in lieu of Quartz Creek Lake. Includes $1,789,988 allotted and $1,789,954 expended for Strube Lake and Cougar Additional Unit.
37. Includes $113,000 pro rata share of site selection costs in lieu of Quartz Creek Lake.
38. Includes $983,934 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds
39. Includes $82,408 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
40. Includes $25,984 allotted and expended under 710, recreation facilities at completed projects.
41. Includes $1,361,900 for O&M and fish evaluation of Spring Creek Hatchery (funds revoked and paid to USFWS at OCE level, but a cost to project); includes $423,800 special recreation use fees. Includes $933,438 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
42. Includes $457,611 allotted and expended under 710, recreation facilities at completed projects.
43. Includes $991,562 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
44. Includes $978,478 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
45. Includes $1,140,747 allotted and expended under 710, recreation facilities at completed projects, and $52,997,220 allotted and expended additional units 15 - 22 funds.
46. Includes $721,490 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
47. Includes $936,376 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
48. Includes $66,678 under maintenance and operation of dams and other improvements of navigable waters.
49. Includes $861,852 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
50. Includes $24,307 under code 422 General Investigation.
51. Excludes $3,000 contributed funds.
52. Excludes 96-89X4045 funds. Contributed by BPA to construct the John Day Smolt Monitoring Facility.
53. Includes $90,694 under maintenance and operation of dams and other improvements of navigable waters.
54. Excludes 96-89X4045 funds.
55. Includes $150,000 under maintenance and operation of dams and other improvements of navigable waters.

TABLE 28-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
1		**CHETCO RIVER, OR**	
	Mar 02, 1945	To provide for the stabilization of the channel, by constructing jetties and dredging.	H. Doc. 817,77th Cong., 2d Sess
	Oct 27, 1965	Modification of channel entrance and channel improvements.	S. Doc. 21, 89th Cong., 1st Sess.
	Dec 04, 1981	Deepen channel 2 feet to 16 feet, extend the existing jetty S. system 750 feet for the North, and 1,250 feet for the South jetty.	Doc. 10, 96th Cong., 1st Sess.
	Oct 31, 1992	Assume responsibility for O&M of the approximately 200-foot-long access channel to the south commercial boat basin consistent with authorized project depths.	P.L. 102-580, 102nd Cong.
2.		**COLUMBIA AND LOWER WILLAMETTE RIVERS BELOW VANCOUVER, WA AND PORTLAND, OR**	
	Feb 27, 1911	2 pipeline dredges and accessories.	H. Doc. 1278, 61st Cong., 3d Sess.[1]
	Jul 25, 1912	Increasing main channel to 30 feet.	H. Doc. 1278, 61st Cong., 3d Sess.[1]
	Jul 27, 1916	Consolidating improvement below Portland, OR and between Vancouver, WA and mouth of Willamette.	No Prior Report
	Aug 08, 1917	For the Cathlamet channel.	H. Doc. 120, 63d Cong., 1st Sess.[1]
	Sep 22, 1922	Construct an additional dredge (dredge was not built) and accessories for better maintenance, and construct contraction works.	H. Doc. 1009, 66th Cong., 3d Sess.
	Mar 04, 1923[2]	Channel from deep water in Willamette Slough to deep water in Columbia River.	H. Doc. 156, 67th Cong., 2d Sess.
	Mar 03, 1925	Depth of 25 feet and width of 300 feet from mouth of Willamette River to Vancouver, WA.	H. Doc 126, 68th Cong., 1st Sess.
	Mar 03, 1927	Closing east channel at Swan Island in Willamette River on condition that main channel to be opened to project dimensions on west side of island by Port of Portland.	Rivers and Harbors Committee Doc. 10 69th Cong., 2d Sess.
	Jul 03, 1930	For a 35-foot channel 500 feet wide from Portland to the sea.	H. Doc. 195, 70th Cong., 1st Sess. and Rivers and Harbors Committee Doc. 8, 71st Cong., 1st Sess.[1]
	Sep 06, 1933[3]	A channel 28 feet deep and 300 feet wide from mouth of Willamette River to Vancouver, with 2 turning basins, each generally 28 feet deep by 800 feet wide by 2,000 feet long.	H. Doc. 249, 72d Cong., 2d Sess.[1]
	Aug 30, 1935	A channel in Columbia River from mouth of Willamette to interstate highway bridge at Vancouver, WA, 30 feet deep and 300 feet wide, with 2 turning basins at Vancouver.	Rivers and Harbors Committee Doc. 1, 74th Cong., 1st Sess.
	Aug 30, 1935	Maintenance of not to exceed 35 foot depth at low water in Portland Harbor and Willamette River between its mouth and Broadway Bridge at Portland.	Rivers and Harbors Committee Doc. 6, 73d Cong., 1st Sess.[1]

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	Aug 30, 1935	Auxiliary channels, 30 feet deep, 300 feet and 500 feet at St. Helens.	H. Doc. 235, 72d Cong., 1st Sess.[1]
	Aug 26, 1937	Extension of lower turning basin at Vancouver, WA, 1,000 feet downstream.	Rivers and Harbors Committee, Doc. 81, 74th Cong., 2d Sess.
	Aug 26, 1937	An auxiliary channel 24 feet deep and 200 feet wide along waterfront at Rainier, OR.	H. Doc. 203, 75th Cong., 1st Sess.[1]
	Mar 02, 1945	Improvement of old mouth of Cowlitz River.	H. Doc. 341, 77th Cong., 1st. Sess.[1]
	Mar 02, 1945	An auxiliary channel in vicinity of Longview, WA.	H. Doc. 630. 77th Cong., 2d Sess.[1]
	Jul 24, 1946	A small-boat mooring basin at Astoria, OR.	H. Doc. 692, 79th Cong.,2d Sess.[1]
	Oct 23, 1962	A channel 35 feet deep and 500 feet wide from mouth of Willamette River to interstate highway bridge at Vancouver, WA, with 2turning basins of same depth.	H. Doc. 203, 87th Cong., 1st Sess.
	Oct 23, 1962	A channel 40 feet deep and 600 feet wide from at Vancouver, WA, to mouth of Columbia River; a turning basin Vancouver, WA, a turning basin at Longview, WA, and a channel 40 feet deep in Willamette River from mouth to Broadway Bridge which encompasses Portland Harbor area.	H. Doc. 452, 87th Cong., 2d Sess.[1]
3.		**COLUMBIA RIVER AT BAKER BAY, WA**	
	Dec 11, 1933	East Channel	Public Works Administration
	Aug 30, 1935	Main channel	H. Doc. 44, 73d Cong., 1st Sess.
	Mar 02, 1945	West channel 8 feet deep.	H. Doc. 443, 76th Cong., 1st Sess.
	May 17, 1950	West channel 10 feet deep and mooring basin with protecting breakwaters.	S. Doc. 95, 81st Cong., 1st Sess.
4.		**COLUMBIA RIVER BETWEEN CHINOOK, WA AND HEAD OF SAND ISLAND**	
	Jun 20, 1938	Channel 8 feet deep. Doc. 50,75th Cong., 2d Sess.	Rivers and Harbors Committee
	Sep 03, 1954	Channel 10 feet deep and mooring basin.	S. Doc. 8, 83d Cong., 1st Sess.[1]
5.		**COLUMBIA RIVER AT THE MOUTH, OR AND WA**	
	Mar 03, 1905	Extend South Jetty and construct North Jetty and dredging.	H. Doc. 94, 56th Cong., 1st Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944 as amended
	Sep 03, 1954	Bar channel of 48-foot depth and spur jetty on north shore.[9]	H. Doc. 249, 83d Cong., 2d Sess.[1]
	Jul 30, 1983	Deepening the northernmost 2,000 feet of the channel Cross-section to 55 feet.	P.L. 98-63
	May 24, 1995	Lower a 500' section of south jetty at river mile 7.	Sec. 1135, P.L. 99-662, As amended

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
6.		**COLUMBIA RIVER BETWEEN VANCOUVER, WA, AND THE DALLES, OR**	
	Aug 26, 1937	Construct a channel 27 feet deep by 300 feet from Vancouver, WA, to Bonneville, OR.	H. Committee Doc. 94, 74th Cong., 2d Sess.[1]
	Mar 02, 1945	Construct Camas-Washougal turning basin.	H. Doc. 218, 76th Cong., 1st Sess.
	Jul 24, 1946	Construct a channel 27 feet deep by 300 feet wide from Bonneville, OR, to The Dalles, OR.	H. Doc. 704, 79th Cong., 2d Sess.
	Jul 24, 1946	Construct a boat basin at Hood River, OR, 10 feet deep, 500 feet wide, by 1,300 feet long.	H. Doc. 704, 79th Cong., 2d Sess.
	Jul 24, 1946	Construct a barge channel at Bingen, WA, 10 feet deep, 200 feet wide, by 1 mile long, and an access channel 7 feet deep, 100 feet wide, by 1,000 feet long to natural Mooring basin.	H. Doc. 704, 79th Cong., 2d Sess.
	Jul 24, 1946	Construct The Dalles Harbor 8 feet deep, 400 feet wide by 800 feet long.	S. Doc. 89, 79th Cong., 1st Sess.[1]
7.		**COLUMBIA RIVER CHANNEL IMPROVEMENTS, OR**	
	Aug 17, 1999	Deepen the existing navigation channel by three feet.	P.L. 106-53
8.		**COOS BAY, OR**	
	Jun 25, 1910	Dredging the Ocean Bar Channel.	H. Doc. 958, 60th Cong.,1st Sess.
	Mar 02, 1919	A channel 22 feet deep to Smith's Mill.	H. Doc. 325, 65th Cong., 1st Sess.
	Sep 22, 1922	Restore North Jetty 9,600 feet long, constructs a South Jetty about 3,900 feet long, extend 22-foot bay channel from Smith's Mill to Millington.	H. Doc. 150, 67th Cong., 2d Sess.
	Jan 21, 1927	Extend jetties to such lengths as may be practicable within estimate of total cost of jetties, $3,250,000 given in H. Doc. 150, 67th Cong.	H. Doc. 320, 69th Cong., 1st Sess.
	Jul 03, 1930	A channel 24 feet deep and 300 feet wide, through Pigeon Point Reef, following a location along westerly side of bay.	H. Doc. 110, 70th Cong., 1st Sess.[1]
	Aug 30, 1935	For 24-foot channel from Pigeon Point Reef to Smith's Mill and a turning basin above Marshfield.	S. Committee Print, 73d Cong., 2d Sess.[1]
	Jul 24, 1946	Increased dimensions of channel across bar and to Isthmus Slough and turning basin opposite Coalbank Slough and at city of North Bend; anchorage basins at mile 3.5 and near mile 7.	S. Doc. 253, 79th Cong., 2d Sess.
	Jun 30, 1948	A mooring basin and connecting channel at Charleston.	H. Doc 646, 80th Cong., 2nd Sess.
	Dec 31, 1970	Increase dimensions to provide for bar channel 45 feet deep, inner channel 35 feet deep to mile 15, and deepening and widening existing turning basins and anchorage area.	H. Doc. 151, 91st Cong., 2d Sess.
	Nov 13, 1995	Deepening the authorized channel by 2 feet and expanding one turning basin. The entrance would be 47 feet deep to River Mile (RM) 1 and the inner channel 37 feet between RM 1 and 15.	P.L. 104-46

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
9.		**COQUILLE RIVER, OR**	
	Jun 25, 1910	Dredging shoals between mouth and Riverton, and removing obstruction between mouth of North Fork and Bandon.	H. Doc. 673, 61st Cong., 2d Sess.
	Mar 02, 1919	For a 13-foot channel from ocean to Bandon.	H. Doc. 207, 65th Cong., 1st Sess.[1]
	Jul 03, 1930	Deepen channel to 16 feet between sea and eastern end of North Jetty.	H. Doc. 186, 70th Cong., 1st Sess.
	Aug 30, 1935	Present project depth between sea and eastern end of North Jetty.	S. Committee Print, 74th Cong., 1st Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Food Control Act of 1944 as amended
	Mar 02, 1945	For 13-foot depth from sea to a point 1 mile above Coquille River Lighthouse and snagging to State Highway Bridge.	H. Doc. 672, 76th Cong., 2d Sess.[1]
10.		**DEPOE BAY, OR**	
	Aug 26, 1937	Construction of an inner basin 375 feet long, 125 feet wide and 5 feet deep, with an entrance channel of same depth and 30 feet wide.	H. Doc. 202, 75th Cong. 1st Sess.
	Mar 2, 1945	Construction of an inner basin 750 feet long, 390 feet wide and 8 feet deep, with entrance channel at same depth and 30 feet wide.	H. Doc. 350, 77th Cong. 1st Sess.
	July 14, 1960	Construction of entrance channel 8 feet deep and approved 50 feet wide, concrete breakwater and. stone spending beach	Sec. 107 of R&H Act 1960, Feb. 1965.
11.		**PORT ORFORD, OR**	
	Oct 27, 1965	Extension of existing breakwater by 550 feet.	S. Doc. 62, 88th Cong.,2d Sess
	Dec 31, 1970	Dredging of turning basin 340 feet long, 100 feet wide, 16 feet deep.	H. Doc 151, 91st Cong.,2d Sess.
	Oct 31, 1992	Maintain the authorized navigation channel including those portions of the channel within 50 feet of the port facility.	P.L. 102-580, 102nd Cong.
12.		**ROGUE RIVER HARBOR AT GOLD BEACH, OR**	
	Sep 03, 1954	Two jetties at entrance and improvement of channel.	S. Doc. 83, 83d Cong. 2d Sess.
13.		**SIUSLAW RIVER, OR**	
	Sep 19, 1890	Build two high-tide stone jetties.	H. Doc. 71, 51st Cong., 1st Sess.
	Jun 25, 1910	Extends North Jetty 3,700 feet from old work constructed under previous project and provides for 4,200 foot south jetty.	H. Doc. 648, 61st Cong., 2d Sess.
	Mar 03, 1925	12-foot deep channel.	S. Committee Print, Serial, 68th Cong., 1st Sess.
	Jul 03, 1958	18-foot bar channel and 16-foot river channel and a 600-foot extension of north Jetty. (600-foot extension classified deferred.)	H. Doc. 204, 85th Cong., 1st Sess.[1]
	Oct 22, 1976	Phase I advance engineering and design for north and south jetty extensions.	Final Report of Chief of Engineers
	Oct 01, 1980	Extending north and south jetties about 2,000 and 2,500 feet, respectively.	P.L. 96-367

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
14.		**SKIPANON CHANNEL, OR**	
	Jul 03, 1930	Channel from deep water in Columbia River to railroad bridge, 30 feet deep.	H. Doc. 278, 70th Cong., 1st Sess. [1]
	Aug 26, 1937	Channel extending upstream from railroad bridge a distance of 4,500 feet.	H. Doc. 201, 75th Cong., 1st Sess.
	Jun 30, 1948	Mooring basin 12 feet deep at Warrenton.	S. Doc. 93, 80th Cong., 1st Sess. [1]
15.		**TILLAMOOK BAY AND BAR, OR**	
	Jul 26, 1912	Construct North Jetty 5,700 feet long and dredging	H. Doc. 349, 62d Cong., 2d Sess.
	Mar 04, 1913	channel 16 feet deep, 200 feet wide, to Bay City.	
	Mar 02, 1919	Abandon that portion of project above Bay City.	H. Doc. 760, 65th Cong., 2d Sess
	Mar 03, 1925	Abandon Bay City Channel and present project x (600-foot extension classified of channels and turning basins with regulating works as needed.	H. Doc. 562, 68th Cong., 2d Sess.
	Mar 02, 1945	Repair damage and check erosion on Bayocean Peninsula caused by storm Jan. 1939.	S. Doc. 35, 79th Cong., 1st Sess.[4]
	Jun 30, 1948	Dredging small-boat basin and approach at Garibaldi, OR , to depth of 12 feet.	H. Doc. 650, 80th Cong., 1st Sess.
	Sep 03, 1954	Closure of breach in Bayocean Peninsula.	S. Doc. 128, 83d Cong., 2d Sess.[1]
	Oct 27, 1965	Construct South Jetty, 8,000 feet long.	S. Doc. 43, 89th Cong., 1st Sess.[1]
16.		**UMPQUA RIVER, OR**	
	Sep 22, 1922	North Jetty, 7,500 feet long	H. Doc. 913, 65th Cong., 2d Sess.
	Jan 21, 1927	Present project dimensions of North Jetty and dredging ocean bar.	H. Doc. 320, 69th Cong., 1st Sess.
	Jul 03, 1930	A short south jetty	H. Doc. 317, 70th Cong., 1st Sess[1]
	Aug 30, 1935	A full length south jetty and maintenance dredging to a 26-foot depth.	Rivers and Harbors Committee Doc. 9,72d Cong., 1st Sess.
	Jun 20, 1938	Channel 22 feet deep and 200 feet wide from mouth to Reedsport.	S. Doc. 158, 75th Cong., 3d Sess.[1]
	Mar 02, 1945	Channel 22 feet deep and 200 feet wide from river channel to Gardiner, and turning basin 22 feet deep, 500 feet wide and 800 feet long.	S. Doc. 86,76th Cong., 1st Sess.[1]
	Mar 02, 1945	Channel 10 feet deep and 100 feet wide from river channel to dock in Winchester Bay with mooring and turning basin 10 feet deep, 175 feet wide, and 300 feet long at inner end.	S. Doc. 191, 77th Cong., 2d Sess.[1]
	Jun 30, 1948	Channel 12 feet deep and 100 feet wide from river channel to dock in Winchester Bay with mooring and turning basin 12 feet deep, 175 feet wide, and 300 feet long at inner end.	S. Doc. 154, 80th Cong., 2d Sess.[1]
	Sep 03, 1954	Channel 12 feet deep, Scholfield River.[5]	S. Doc. 133, 81st Cong., 2d Sess.[1]
17.		**WILLAMETTE RIVER AT WILLAMETTE FALLS, OR**	
	Jun 25, 1910	For purchase and rehabilitation of system and construction of concrete division wall.	H. Doc. 202, 56th Cong., 1st Sess. and Annual Report, 1900, P. 4374
	Aug 08, 1917	Deepening of locks.	H. Doc. 1060, 62d Cong., 3d Sess.[1]
	Jun 26, 1934[6]	Operation and care of canal and locks provided for with funds from War Department appropriations for Rivers and Harbors.	
	Mar 02, 1945[8]	Construction of New Willamette Falls Locks.	H. Doc. 544, 75th Cong.,3d Sess.

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
18.		**YAQUINA BAY AND HARBOR, OR**	
	Mar 02, 1919	Restoration and extension of jetties constructed under previous projects, rock removal at entrance, and dredging in bay up to railroad terminus at Yaquina.	H. Doc. 109, 65th Cong., 1st Sess.
	Aug 26, 1937	Extension of north jetty seaward 1,000 feet.	S. Committee Print, 75th Cong., 1st Sess.
	Mar 02, 1945	26-foot channel of suitable width across entrance bar, as far as rock bottom will allow, a 20-foot channel 300 feet wide along south side of bay to and including a turning basin 22 feet deep, 1,000 feet wide and 1,200 feet long.	S. Doc. 119, 77th Cong., 1st Sess.[1]
	Jul 24, 1946	Construct a small-boat mooring basin at Newport, OR.	S. Doc. 246, 79th Cong., 2d Sess.
	Jul 03, 1958	40-foot bar channel and 30-foot river channel extension of jetties at entrance.	S. Doc. 8, 85th Cong., 1st Sess.[1]
	Jul 14, 1960	A small boat basin, south shore.	Section 107, P.L. 86-645 Authorized by Chief of Engineers, Mar. 4, 1977
19.		**YAQUINA RIVER, OR**	
	Mar 4, 1913	Construction of channel 10 feet deep and generally 150 feet wide on Yaquina River and 200 feet wide in Depot Creek.	Doc. 579, 62d Cong., 2d Sess.
23.		**APPLEGATE LAKE, ROGUE RIVER BASIN, OR**	
	Oct 23, 1962	Authorizes a rockfill embankment dam.	H. Doc. 566, 87th Cong., 2d Sess.
	Mar 07, 1974	Authorizes construction of project but no operation for irrigation until local interests agree to repay cost allocated.	P.L. 93-251
24.		**BLUE RIVER LAKE, OR**	
	May 17, 1950	Authorizes gravel-filled embankment dam.	H. Doc. 531, 81st Cong., 2d Sess.
	Nov 17, 1986	Authorizes Construction of hydroelectric power facilities	P.L. 99-662
25.		**COTTAGE GROVE LAKE, OR**	
	Jun 28, 1938	Earthfill dam.	H. Doc. 544, 75th Cong., 3d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended 25.
26.		**DORENA LAKE, OR**	
	Jun 28, 1938	Earthfill dam.	H. Doc. 544, 75th Cong., 3d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
27.		**ELK CREEK LAKE, ROGUE RIVER BASIN, OR**	
	Oct 23, 1962	Roller compacted concrete dam.	H. Doc. 566, 87th Cong., 2d Sess.
	Oct 07, 1970	Authorized construction but not operation for irrigation until local interests agree to repay cost allocated.	P.L. 91-439

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
28.		**FALL CREEK LAKE, OR**	
	May 17, 1950	Earth and gravel fill embankment dam.	H. Doc. 531, 81st Cong., 2d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, As amended
29.		**FERN RIDGE LAKE, OR**	
	Jun 28, 1938	Earthfill embankment dam	H. Doc. 544, 75th Cong. 3d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, As amended
	Oct 23, 1962	Raise height of dam to obtain additional storage.	H. Doc 403, 87th Cong. 2d Sess.
	Jun 4, 1993	Construction of waterfowl impoundments.	Sec 1135, P.L.99-662 as amended
30.		**LOWER COLUMBIA RIVER BASIN BANK PROTECTION, OR AND WA**	
	May 17, 1950	Provides bank protection on Columbia River below river mile 125 and along principal tributaries.	H. Doc. 531, 81st Cong., 2d Sess.
31.		**MT. ST. HELENS SEDIMENT CONTROL, WA**	
	Aug 15, 1985	Authorized construction of sediment and retention structures.	P.L. 99-88
32.		**WILLAMETTE RIVER BASIN BANK PROTECTION, OR**	
	Jun 22, 1936	Bank protection works, with channel clearing.	F.C. Act 1936
	Jun 28, 1938	Provide additional protection against flooding.	H. Doc. 544, 75th Cong., 3d Sess.
	May 17, 1950	Addition of 77 locations to scope of projects.	H. Doc. 531, 81st Cong., 2d Sess.
33.		**WILLOW CREEK LAKE, HEPPNER, OR**	
	Oct 27, 1965	Storage project for flood control, recreation, and fish and wildlife.	H. Doc. 233, 89th Cong., 1st Sess.
34.		**BONNEVILLE LOCK AND DAM -- LAKE BONNEVILLE, OR AND WA**	
		Existing project was originally authorized Sep. 30, 1933, by Federal Emergency Administration of Public Works.	
	Aug 30, 1935	Existing project authorized by Congress.	S. Committee Print, 73d Cong., 2d Sess., (Report of Chief of Engineers dated Aug 21, 1933)
	Aug 20, 1937	Completion, maintenance, and operation of Bonneville project under direction of Secretary of War and supervision of Chief of Engineers, subject to certain provisions herein relating to powers and duties of Bonneville Power Administrator.	

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
	Mar 07, 1974	Authorizes relocation of town of North Bonneville to new town site.	P.L. 93-251
	Aug 22, 1984	Acquisition of Steigerwald Lake wetland area.	P.L. 98-396
	Oct 1992	Authorizes transfer of lands to town of North Bonneville.	P.L. 102-396, Sec. 9147
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
38.		**COLUMBIA RIVER TREATY FISHING ACCESS SITES, OR & WA**	
	Nov 1, 1988	Authorizes project for mitigation of lost treaty fishing access resulting from construction of Bonneville Dam.	Title IV of P.L. 100-581
	Oct 12, 1996	Boundary adjustments.	P.L. 104-303, Sec. 512
39.		**COUGAR LAKE, OR**	
	May 17, 1950	Rockfill dam.	H. Doc. 531, 81st Cong., 2d Sess.
	Sep 03, 1954	Addition of power	P.L. 83-780.
	Oct 23, 1962	Strube Lake re-regulating dam.	P.L. 87-874
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
40.		**DETROIT LAKE - BIG CLIFF, OR**	
	June 28, 1938	Authorizes concrete gravity structure.	H. Doc. 544, 75th Cong., 3d Sess.
	Jun 30, 1948	Addition of power and regulating Big Cliff Dam. with power	P.L. 858, 80th Cong.2d Sess.
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
41.		**GREEN PETER-FOSTER LAKES, OR**	
	May 17, 1950	Authorized Green Peter Dam in lieu of originally authorized Sweet Home Lake (1938).	H. Doc. 531, 81st Cong., 2d Sess.
	Sep 03, 1954	Addition of power at Green Peter and White Bridge re-regulating Dam.	P.L. 83-780, F. C. Act 1954
	Jul 14, 1960	Changes location of re-regulating dam from White Bridge location to Foster.	S. Doc. 104, 86th Cong., 2d Sess.
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
42.		**HILLS CREEK LAKE, OR**	
	May 17, 1950	Earth and gravel fill dam.	H. Doc. 531, 81st Cong., 2d Sess.
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
43.		**JOHN DAY LOCK AND DAM - LAKE UMATILLA, OR AND WA**	
	May 17, 1950	Multiple-purpose dam, flood control, navigation. and power	H. Doc. 531, 81st Cong., 2d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
	Mar 24, 1965	John Day waterfowl management area.	S. Doc. 28, 89th Cong., 1st Sess.
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
44.		**LOOKOUT POINT - DEXTER LAKES, OR**	
	Jun 28, 1938	Earth-and-gravel filled dam.	H. Doc. 544, 75th Cong., 3d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
	May 17, 1950	Addition of power and authorization of Dexter Lake as re-regulating dam.	H. Doc. 531, 81st Cong., 2d Sess.
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
45.		**LOST CREEK LAKE, ROGUE RIVER BASIN, OR**	
	Sep 21, 1962	Rock and gravel fill embankment dam, including power.	H. Doc. 566, 87th Cong., 2d Sess.
	Oct 15, 1966	Authorizes construction of project but not operation for irrigation until local interests agree to repay cost allocated.	P.L. 89-689, Public Works Approp. Act, 1967
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
46.		**THE DALLES LOCK AND DAM -- LAKE CELILO, WA AND OR**	
	May 17, 1950	Multiple-purpose dam, flood control, navigation. and power	H. Doc. 531, 81st Cong., 2d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
47.		**COLUMBIA RIVER FISH MITIGATION, OR and WA**	
	Jul 19, 1988	Design, test, and construct fish bypass facilities.	P. L. 100-371
48.		**WILLAMETE RIVER TEMPERATURE CONTROL, OR**	
	Oct 12, 1996	Authorized modifications to intake towers to benefit fish habitat.	P.L. 104-303
	Aug 17, 1999	Increased authorized cost.	P.L. 106-53
49.		**LOWER COLUMBIA RIVER ECOSYSTEM RESTORATION**	
	Dec 11, 2000	Environmental Restoration of fish and wildlife habitat Sec 536 of Water Resource Development Act of 2000	P.L. 106-541

Footnotes:

1. Contains latest published maps.
2. Public Resolution 105, 67th Cong.
3. Public Works Administration.
4. Includes following work, classified inactive. A channel to Hobsonville 200 feet wide and 16 feet deep, with a turning basin 500 feet wide at Hobsonville, and regulating works as needed.
5. Inactive.
6. Permanent appropriations Repeal Act.
7. Flood Control Act
8. Classified Deferred.
9. Spur Jetty "B" classified inactive

TABLE 28-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance
Alsea River, OR	Completed		2,000	26,237
Astoria Turning Basin, OR[1]	Completed	1977	870,139	
Bandon Small Boat Basin, Coquille, OR[1]	Completed	1985	1,173,524	
Bonneville Navigation Lock OR & WA[20]	Completed	2002	175,442,306	
Bridges, Columbia River, Cascade Locks and Hood River, OR (Alteration)	Completed	1944	1,081,806	16,648
Cathlamet, WA[1]	Completed	1971	171,467	
Charleston Channel, Coos Bay, OR[1]	Completed	1985	1,197,300	
Clatskanie River, OR[2]	Completed	1969	19,2400[3]	194,896[4]
Columbia River, Illwaco, WA[1]		1986	1,589,231	
Coos & Millicoma Rivers, OR	Completed	1991	350,238[18]	2,152,914
Cowlitz River, WA	Completed	1985	277,436[6]	1,474,036
Cushman-Mapleton Channels (Siuslaw River), OR[1]	Completed	1975	329,423	
Deep River, WA[2]	Completed	1963	15,384	32,768
Depoe Bay, OR[1]	Completed	1971	145,588[5]	
Elochoman Slough, WA[2]	Completed	1990	18,641[17]	196,864
Grays River, WA[2]	Completed	1941	2,500	35,670
Hammond Small Boat Basin, OR[1]	Completed	1977	519,090[7]	
Interstate Bridge, Columbia River, Portland, OR to Vancouver WA (Alteration)	Completed	1961	1,154,162[8]	
Interstate Highway Bridge (Barge Channel), OR[1]	Completed	1963	15,281	
Kalama Turning Basin, Kalama, WA[1]	Completed	1986	302,000	
Lake River, WA	Completed	1983	2,700	58,127
Lewis River, WA	Completed	1985	58,132	685,677
Long Tom River, OR	Completed			4,000
Mooring for Battleship Oregon, OR	Completed			25,000
Multnomah Channel, OR[2]	Completed	1982	437,669[9]	
Nehalem Bay, OR	Completed	1987	302,006[10]	55,195
Nestucca River, OR	Completed			6,000
Oregon Slough, (North Portland Harbor), OR[2]	Completed	1963	16,881	90,514
Salmon River, OR[2]	Completed	1949	2,145	
Smith River, OR[2]	Completed	1974	143,120	205,130
Skamokawa Creek, WA	Completed	1991	2,400	436,185
South Channel, Government Island, OR[1]	Completed	1985	119,800[11]	
South Slough (Charleston), OR[1]	Completed	1970	26,821	
The Cascades Canal, Columbia River, OR[12]	Abandoned	1939	3,903,780	559,858
The Dalles-Celilo Canal, OR and WA[13]	Abandoned	1957	4,716,205	2,833,888
Tongue Point, OR[1]	Completed	1992	2,807,876[19]	
Umatilla Harbor, OR[14]	Abandoned	1952		
Westport Slough, OR[2]	Completed	1966	16,276	171,909
Willamette River above Portland and Yamhill River, OR	Completed	1985	862,918	17,900,293
Winchester Bay, Umpqua River, OR	Completed	1985	1,616,369	
Yaquina Bay and Harbor Small Boat Basin, OR[1]	Completed	1979	891,695[15]	
Yaquina River, OR[1]	Completed	1971	195,313[16]	
Youngs and Clatskanie River, OR	Completed		2,000	
Youngs Bay and Youngs River, OR[2]	Completed	1979	9,348	34,449
7.5 MCY Standby Time	Completed	1996		4,314,000

TABLE 28-C (Cont'd) OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance

Footnotes:

1. Authorized by Chief of Engineers (sec. 107).
2. Channel adequate for present commerce.
3. Includes $15,537 for previous project
4. Includes $23,489 for previous project.
5. Excludes $42,000 contributed funds.
6. Includes $239,529 for Sec. 107 project.
7. Excludes $75,000 contributed funds.
8. Non-Federal funds, $1,204,100.
9. Includes $419,557 for Sec. 107 project.
10. Excludes $304,826 contributed funds.
11. Excludes $102,000 contributed funds.
12. Project abandoned due to flooding by Bonneville Dam pool.
13. Project abandoned due to flooding by The Dalles Dam pool.
14. Project transferred to Portland District from Walla Walla District FY 1974 and abandoned due to flooding by the John Day Dam pool.
15. Excludes $969,342 contributed funds.
16. Excludes $50,565 contributed funds
17. Excludes $86,586 contributed funds.
18. Excludes $80,000 contributed funds; includes $8,000 for previous project.
19. Excludes $1,776,008 contributed funds.
20. Excludes $180,132,885 contributed funds.

TABLE 28-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance
COLUMBIA RIVER BASIN				
Blind Slough Diking District, Clatsop County, OR	Completed	1939	163,397	
Consolidated Diking and Improvement District 1,Cowlitz County, WA	Completed	1941	163,291	
Deep River Area, Wahkiakum County, WA	Completed	1942	69,724	
Deer Island Area, Columbia County, OR	Completed	1943	574,123	
Diking District 2, Clatsop County, OR	Completed	1940	25,609	
Diking District 5, Clatsop County, OR	Completed	1940	25,609	
Diking and Improvement District 5, Cowlitz County, WA	Completed	1940	161,381	
Diking District 1 and 3 (Puget Island) and Little Island, Wahkiakum County, WA	Completed	1941	258,795	
Diking Improvement District 1, Pacific County WA	Completed	1941	26,810	
Diking and Improvement District 4, Wahkiakum County, OR	Completed	1951	169,542	
Drainage District 1, Clatsop County, OR	Completed	1939	240,939	
John Day River Area, Clatsop County, OR	Completed	1942	33,080	
Karlson Island, Clatsop County, OR	Completed	1941	25,773	
Knappa Area, Clatsop County, OR	Completed	1942	18,789	
Lewis and Clark River Area, Clatsop County, OR	Completed	1942	158,419	
Lower Cowlitz River Area, Clatsop County, OR	Completed	1961	91,652	
Magruder Drainage District, Columbia County, OR	Completed	1940	61,186	

TABLE 28-E (Cont'd) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance
COLUMBIA RIVER BASIN (Cont'd)				
Marshland Drainage District, Columbia County, OR	Completed	1940	39,475	
Midland Drainage District, Columbia County, OR	Completed	1939	77,774 [3]	
Multnomah Drainage District 1, OR	Completed	1951	593,034 [4]	
Peninsula Drainage District 1, Multnomah County, OR	Completed	1942	241,148	
Port of Kalama, WA[1]	Completed		99,844	
Rainier Drainage District, Columbia County, OR	Completed	1942	47,662	
Sauvie Island Areas A and B, Multnomah County, OR	Completed	1951	1,623,505	
Scappoose Drainage District, OR	Completed	2000	4,121,487	
Skamokawa Creek Area, Wahkiakum County, WA Wahkiakum County Consolidated	Completed	1946	178,885	
Diking District No. 1, WA	Completed	1985	5,289,833	
Tenasillahe Island, Clatsop County, OR	Completed	1939	133,778	
Upper Grays River Area, WA	Completed	1947	61,263	
State Hwy 101 & 401, Columbia River, WA[1]	Completed	1985	504,642[11]	
Walluski River, Clatsop County, OR	Completed	1942	66,932	
Warrenton Diking District, 1, Clatsop County, OR	Completed	1940	69,503	
Warrenton Diking District 2, Clatsop County, OR	Completed	1940	74,596	
Webb District Improvement Co., Columbia County, OR	Completed	1940	84,592	
Westland District Improvement Co., Columbia County, OR	Completed	1940	205,531	
Westport District Columbia and Clatsop Counties, OR	Completed	1943	40,658	
Woodson Drainage District, Columbia County, OR	Completed	1940	22,797	
Youngs River Dikes, Clatsop County, OR	Completed	1942	248,802	
LEWIS RIVER BASIN				
Diking and Improvement District 11, Cowlitz County, WA	Completed	1943	172,521	
COWLITZ RIVER BASIN				
Cowlitz County Drainage Improvement District 1, WA	Completed	1939	42,978	
Diking Improvement District 13, Cowlitz County, WA	Completed	1939	28,592	
Huntington Avenue, Castle Rock, WA[1]	Completed	1985	250,000	
Mt. St. Helens and Vicinity, WA	Completed	1995	42,036,000	

TABLE 28-E (Cont'd) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance
LOWER COLUMBIA RIVER BASIN				
Beaver Drainage District, OR	Completed	1984	3,131,944	
Cowlitz County Consolidated Diking Improvement District No. 2, WA	Completed	1977	1,661,367	
Cowlitz County Diking Improvement District 2, WA	Completed	1967	363,000	
Cowlitz County Diking Improvement District 13, WA	Completed	1967	65,345	
Cowlitz County Diking Improvement District 15, WA	Completed	1967	304,794	
Cowlitz River, Hopkins Creek, WA[1]	Completed		236,860	
Hayden Island, OR	Inactive			
Midland Drainage District, OR	Completed	1971	304,511	
Multnomah County Drainage District 1, OR	Completed	1964	1,499,186	
Peninsula Drainage District 2, OR	Inactive	1961	35,265	
Rainier Drainage District, OR	Completed	1967	593,945	
Sandy Drainage District, OR	Completed	1954	154,012 [5]	
Sauvie Island Drainage District, OR	Completed	1966	674,137	
Vancouver Lake Area, WA	Deferred	1981	889,391	
Wahkiakum Co. Diking District 4, WA	Inactive	1971	48,619	
Washougal Area Levees, Clark County, OR	Completed	1973	1,803,488	
Woodson Drainage District, OR	Completed	1964	162,500	
WILLAMETTE RIVER BASIN				
Amazon Creek, OR	Completed	1960	1,214,300 [6]	
Mill Creek, Salem, OR	Completed	1993	175,800[14]	
Sandy River and Sleepy Hollow, OR[1]	Completed		276,700	
Whelton Ditch, OR	Inactive	1967	39,624	
ALL OTHER FLOOD CONTROL				
Arlington, Alkali Canyon, OR[7]	Abandoned	1950	23,439	
Bear Creek, Medford, OR[1]	Completed		23,050	
Beaver Creek Near Tillamook, OR[2]	Completed	1967	106,198	
Castle Rock, Cowlitz River, WA	Completed	1957	104,921	
Catching Inlet Drainage District Coos River, OR[2]	Completed	1959	182,655	
Chewaucan River, Paisley, OR[1]	Completed		42,761	
Clackamas River at Dixon Farm Location, OR	Completed	1952	70,845 [8]	
Days Creek Lake, OR (Phase I)	Deferred	1982	1,307,216	
Depoe Bay, Lincoln County, OR[1]	Completed		22,963	
Deschutes River, Bend, OR[2]	Completed	1988	106,250[13]	
John Day River (West), OR[1]	Completed	1986	127,800	
Johnson Creek, OR	Inactive	1981	170,245	
McDonald Dike Road, Nehalem River, OR[1]	Completed	1985	29,500	

TABLE 28-E (Cont'd) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance
ALL OTHER FLOOD CONTROL (Cont'd)				
McKenzie River Near Waterville, OR[2]	Completed	1966	148,358	
Miami River, OR[1]	Completed		15,321	
Yaquina River, OR	Completed	1948	118,433	
Molalla River at Milk Creek Location, OR[2]	Completed	1955	55,007	
Molalla River at Ressel Location, OR[2]	Completed	1952	55,189	
Nestucca River, Condor Road, OR[1]	Completed		11,690	
Nestucca River, Vicinity Pacific City, OR[1]	Completed		16,000	
Pendleton Levees, Umatilla River, OR[9]				
(a) Riverside Area Units	Deferred	1960	9,100	
(b) State Hospital and City Areas (Zone 1)	Completed	1959	267,748	
(c) State Hospital and City Areas (Zone 2)[2]	Completed	1960	161,540	
Pendleton, Umatilla River, OR[9]	Completed	1939	143,263	
Reedsport Levees, Umpqua River, OR[2]	Completed	1971	968,716[10]	
Rogue River, OR[1]	Completed		86,230	
Salmon Creek at Oakridge, OR[2]	Completed	1960	288,447	
Salmon Creek Near Vancouver, WA[1]	Completed	1985	435,000[12]	
Sandy River, City of Troutdale, OR[1]	Completed	1994	365,000[15]	
Siuslaw River, Lane County, OR[1]	Completed		215,939	
Stillwell Drainage District, Tillamook Bay, OR[2]	Completed	1961	176,351	
Sumner Parker Airport, OR[1]	Completed		92,500	
Trask River, Tillamook County, OR[1]	Completed	1984	121,273	
Tualatin, OR	Completed	1985	1,803,094	
Umatilla River, Stanfield, OR[1]	Completed		33,835	
Umatilla River, Thorn Hollow, OR[1]	Completed	1985	154,600	
Umpqua River and Tributaries, OR	Completed	1952	428,881	
Vicinity of Nehalem, Nehalem River, OR	Completed	1952	45,677	
West Makinster Rd., Wilson River, OR[1]	Completed	1986	176,000	
Wilson River, Vicinity Highway 101, OR[1]	Completed		30,000	

Footnotes:

1. Authorized by Chief of Engineers (Sec. 14).
2. Authorized by Chief of Engineers (Sec. 205).
3. Includes $26,241, Emergency Relief Act Funds.
4. Excludes $25,000 contributed funds.
5. Previous completed project, $138,956; $15,056 engineering costs project constructed by local interests.
6. Excludes $154,751 contributed funds.
7. Project transferred from Walla Walla District FY 1974 and abandoned due to flooding by the John Day Dam pool. Includes $3,328 FY 1960 preauthorization costs, Sec. 205, P.L. 80-85. See FY 1960 Annual Report, page 1887.
8. Excludes $2,520 contributed funds.
9. Reported by Walla Walla District prior to 1974.
10. Excludes $230,070 contributed funds for new work and $31,284 Government furnished sheet steel pile.
11. Includes $254,642 contributed funds.
12. Includes $185,000 contributed funds.
13. Excludes $5,822 contributed funds.
14. Excludes $31,031 contributed funds.
15. Excludes $98,313 contributed funds.

TABLE 28-F OTHER AUTHORIZED MULTIPLE PURPOSE PROJECTS, INCLUDING POWER

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Operation and Maintenance
Restoration of Indian Fishing Grounds Bonneville, OR	Completed	1969	185,000	
Columbia and Snake Rivers Ports Dredging, OR & WA	Inactive	1994		5,799,926

TABLE 28-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Area East of Albany, OR		1977		
Bachelor Island, WA		1977		
Bear Creek, Long Tom River, OR	1966	1971	4,559	
Calapooya River, OR	1959	1965	11,595	
Cascadia Lake, OR		1987	954,114 [1]	
Chetco River, OR		1997	235,353	
Clatskanie River Area, Columbia County, OR	1960	1965	268	
Clatskanie Drainage Dist. 1, OR	1964	1978	18,543	
Clatsop County Drainage District 1, OR	1960	1974	4,472	
Clatsop County Diking District 3, OR	1938	1961	258	
Clatsop County Diking District 4, OR		1978		
Clatsop County Diking District 6, OR	1961	1978	8,824	
Columbia Drainage District No. 1, OR		1987		
Columbia River, Seafarers Memorial	2000	2000	52,024	
Columbia Slough, OR	1953	1978	21,352	
Coquille River, OR	1948	1953	908	
Cowlitz County Consolidate Diking Improvement District 1, OR		1977		
Cowlitz River at Randle, WA	1962	1977	11,095	
Coyote and Spencer Creek, Long Tom River, OR	1960	1970	6,819	
Deer Island Drainage District, OR		1987		
East Muddy and Lake Creek, OR	1959	1970	6,465	
Ferguson Creek Long Tom River, Or		1978		
Flat Creek, Long Tom River, OR		1977		
Floodwall and Levees at Portland, OR		1977		
Gate Creek Lake, OR		1987	745,001 [2]	
Holley Lake, OR	1963	1987	241,992 [3]	

TABLE 28-G (Cont'd) DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
John Drainage District, OR	1961	1979	23,754	
John Day River, OR	1974	1974	210,220	
Kalama River (South Area) Levee, Cowlitz County, WA	1969	1978	55,594	
Lake River Delta Area, WA		1977		
Lewis River Area, WA		1978		
Magruder Drainage District, OR	1940	1974	774	
Mud and Basket Slough Rickreall Creek, OR		1977		
Pendleton Levees, Riverside Area, OR		1987	9,000	
Peninsula Drainage District 1, OR	1942	1977	43,292	
Pilot Rock, Birch Creek, OR	1963	1968	4,558	
Prescott Area, Columbia County, OR	1941	1978	125	
Prineville Area, Crooked River and Ochoco Creek, OR	1962	1977	11,318	
Pudding River, OR	1950	1979	5,000	
Shelton Ditch, Marion County, OR	1967	1987	39,624	
Skamokawa (Steamboat Slough), WA	1939	1979		
Soap Creek, WA		1977		
Turner Prairie, Mill Creek, OR		1978		
Umatilla River (Echo), OR	1960	1964	24,145	
Umpqua River-Scholfield River, OR		1987	4,000	
Waldo Lake Tunnel, OR		1958		
West Muddy Creek and Mary's River, OR	1962	1970	4,056	
Westport Slough, OR (Modification for 32-foot channel)	1966	1977		
Wiley Creek Lake, OR	1960		112,000	
Willamette River above Portland and Yamhill River, OR (uncompleted portions)		1987		
Willamette Falls Fish ladder, OR	1961			
Willamette River at Willamette Falls, OR	1948	1987	142,883	

Footnotes:

1. Excludes Pro-rata share of $112,000 for Sweet Home Reservoir.
2. Excludes Pro-rata share of $95,000 for Quartz Creek Reservoir.
3. Excludes $100,000 preauthorization study costs.

TABLE 28-H COLUMBIA AND LOWER WILLAMETTE RIVER BELOW VANCOUVER, WA, AND PORTLAND, OR TOTAL COST OF EXISTING PROJECT TO SEP. 30, 2003

(SEE SECTION 2 OF TEXT)

Funds	New Work	Maintenance	Total
Regular	28,349,304	477,271,411	505,620,715
Public Works	446,296	14,414	460,710
Emergency Relief Administration	138,449	98,668	237,117
Total U.S.	28,934,049	477,384,493	506,318,542
Contributed Prior to 1964	223,026	24,320	247,346
Contributed (1975) 35 to 40-foot Channel	442,928		442,928
Total Contributed	665,954	24,320	690,274
Total All Funds	29,600,003	477,408,813	507,008,816

TABLE 28-I PROJECT CONDITION SURVEYS

(SEE SECTION 20 OF TEXT)

Project	Date Survey Conducted
Tillamook, OR	Jun 2003
Hood River Boat Basin, OR	Dec 2001
Siuslaw River - Florence to Mapleton, OR	Sep 2001
Hammond Boat Basin, OR	July 2002
Cathlamet Bay, WA	Aug 2003
Cathlamet Channel, WA	Aug 2003
Chinook Channel, WA	Oct 2003

TABLE 28-J WILLAMETTE RIVER AT WILLAMETTE FALLS, OR PRINCIPAL FEATURES OF EXISTING CANAL AND LOCKS

(SEE SECTION 17 OF TEXT)

Usable Lock Dimensions	Series of 4 locks, each 175 feet by 37 feet[1]
Lift of each lock	Lock 1 (Lower), 22,5 feet; Lock 2, 8.7 feet; Lock 3, 10.9 feet and Lock 4 (Upper), 8.1 feet[2]
Depth of Miter Sills at Lower Water	Lower Lock, 8.4 feet; Upper Lock, 6 feet
Character of foundation	Rock
Kind of Dam	Fixed[3]
Type of Construction	Concrete
Year of Completion	1873; Purchased by United States Apr. 26, 1915
Cost	Unknown; purchase price $375,000

Footnotes:

1. A guard lock 210 by 40 feet, which is used only at higher states of water, is at upper end of canal basin.
2. A concrete division wall, 1,227 feet long, extending from Lock 4 to Guard Lock, separates upper basin of canal from head race, which formerly led directly from basin and supplied water for power plants operated by Crown Zellerbach Corp., and Portland Ry., Light & Power Co., which is now being operated by Portland General Electric Co.
3. The dam is owned by private parties.

TABLE 28-K FLOOD CONTROL RESERVOIR OPERATIONS

See Section in Text	Project	Date of Peak Inflow	Peak Inflow Cu. Ft./Sec.	Storage Used Acre/feet
23.	Applegate Lake, OR	December 27, 2002	8,880	6,670
24.	Blue River Lake, OR	January 30, 2003	8,390	20,670
25.	Cottage Grove Lake, OR	February 1, 2003	2,960	7,630
39.	Cougar Lake, OR	January 30, 2003	7,750	15,650
40.	Detroit Lake, OR	January 30, 2003	18,600	84,950
26.	Dorena Lake, OR	January 30, 2003	6,360	22,490
28.	Fall Creek Lake, OR	January 30, 2003	8,320	27,470
29.	Fern Ridge Lake, OR	December 30, 2002	8,600	25,880
41.	Foster Lake, OR	January 30, 2003	13,340	6,070
41.	Green Peter Lake, OR	January 30, 2003	18,980	74,500
42.	Hills Creek Lake, OR	January 30, 2003	7,520	29,930
44.	Lookout Point Lake, OR	January 30, 2003	18,100	69,100
45.	Lost Creek Lake, OR	December 27, 2002	4,950	3,520

TABLE 28-L WORK UNDER SPECIAL AUTHORITIES PROJECTS NOT SPECIFICALLY AUTHORIZED

Project	Status [1]	Fiscal Year Costs Federal	Non-Federal	Total
Beach Erosion Control Projects Pursuant to Section 103 of the 1962 Rivers and Harbors Act, Public Law 874, 87th Congress, As Amended (See Section 22 of text)				
Rock Creek, Highway 101, OR	F	14,082	14,087	28,169
US 101, Beverly Beach, OR	F	58,195	55,255	113,450
Coordination		4,953	---	4,953
Total Section 103		77,230	69,342	146,572
Navigation Activities Pursuant to Section 107 of the 1960 Rivers and Harbors Act, Public Law 645, 86th Congress, as Amended (See Section 21 of text)				
Port of Brookings (Chetco), OR	F	48,697	36,849	85,546
Coordination		9,971	---	9,971
Skamokawa Creek	F	13,678		13,678
Total Section 107		72,345	36,849	109,195
Shore Damage Attributable to Navigation Works, Pursuant to Section 111 of the 1960 Rivers and Harbors Act, Public Law 645, 86th Congress, as Amended (See Section 21 of text)				
Puget Island Shoreline, WA and OR	F	23,847	---	23,847
Total Section 111		23,847	---	23,847

TABLE 28-L (Cont'd) WORK UNDER SPECIAL AUTHORITIES PROJECTS NOT SPECIFICALLY AUTHORIZED

Project	Status [1]	Fiscal Year Costs Federal	Non-Federal	Total
Flood Control Activities Pursuant to Section 205 of the Flood Control Act of 1948, Public Law 858, 80th Congress, as Amended (See Section 36 of text)				
Hamilton Creek	F	807	---	807
Bend, Deschutes	F	55,964	---	55,964
Multnomah Diking District #1	F	28,877	---	28,877
Dam Break Early Warning System	F	28,808	---	28,808
Coordination		10,827	---	10,827
Total Section 205		119,283	---	119,283
Emergency Streambank Protection Activities Pursuant to Section 14 of the 1946 Flood Control Act, Public Law 526, 79th Congress as amended (See Section 36 of text)				
City of Harrisburg	D	8,896	---	8,896
Grant Pass, OR	C	-37,956	37,956	---
St Johns Landfill	D	8,327	---	8,327
Coordination		7,981	---	7,981
Total Section 14		12,752	37,956	25,204
Project Modifications for Improvement of the Environment Pursuant to Section 1135 of the 1986 Water Resources Development Act, Public Law 662, 99th Congress, as Amended (See Section 50 of text)				
Amazon Creek Wetlands, OR	C	237,190	---	237,190
Brownsmead, OR	D	134,868	---	134,868
Steigerwald Lake	F	49,684	---	49,684
Fern Ridge Lake Marsh Restoration, OR	C	15,460	34,379	49,839
Fox Creek, OR	C	---	63	63
Lower Columbia Slough	C	483,096	---	483,096
SW Washington Streams	F	56,527	---	56,527
Willamette Mission State Park, OR	D	10,449	---	10,449
Crimms Island	R	28,123	---	28,123
Willow Creek, OR	R	5,962	---	5,962
Dairy Creek, OR	R	3,501	---	3,501
Lost Creek @ Central Point, OR	R	5,001	---	5,001
Grays River At Cathlamet	R	9,019	---	9,019
Coordination		19,125	---	19,125
Total Section 1135		1,058,005	34,442	1,092,447
Aquatic Ecosystem Restoration Pursuant to Section 206 of the 1996 Water Resources Development Act, Public Law 303, 104th Congress, as Amended (See Section 50 of text)				
Westland Dam, OR	F	6,920	---	6,920
Camp Polk Meadow, OR	D	41,777	---	41,777
East Birch Creek Restoration, OR	C	884	47,881	48,765
Eugene Delta Ponds, OR	P	313,415	---	313,415
Gold Hill Dam, OR	D	38,521	---	38,521
Gross Creek, Bandon, OR	D	1,787	---	1,787
Salmon Creek, WA	F	11,067	---	11,067

TABLE 28-L (Cont'd) **WORK UNDER SPECIAL AUTHORITIES**
PROJECTS NOT SPECIFICALLY AUTHORIZED

Project	Status [1]	Fiscal Year Costs Federal	Non-Federal	Total
Aquatic Ecosystem Restoration Pursuant to Section 206 (Cont'd)				
Springfield Millrace, OR	F	215,054	---	215,054
City of Keizer, Labish Ditch, OR	D	1,311	---	1,311
Westmoreland Park, OR	F	86,030	---	86,030
Kellogg Creek, OR	F	236,924	---	236,924
Alsop Brownwood, OR	F	122,524	---	122,524
Highway 47, Vernonia, OR	D	188,339	---	188,339
Coordination		17,749	---	17,749
Bad Bank Creek, OR	R	3,885	---	3,885
McKenzie River, OR	R	5,916	---	5,916
Beaver Creek, OR	R	5,888	---	5,888
Beaver Creek, OR	F	8,830	---	8,830
Oaks Bottom, OR	R	5,800	---	5,800
Oaks Bottom, OR	F	71,428	---	71,428
Johnson Creek/Springwater, OR	R	5,954	---	5,954
Johnson Creek/Springwater, OR	F	9,375	---	9,375
Savage Rapids Dam, OR	R	9,962	---	9,962
Coos Bay, Hwy 101, OR	R	9,817	---	9,817
Sutherlin Creek, OR	R	7,667	---	7,667
Chinook River Estuary, WA	R	9,893	---	9,893
Coffee Lake, Wilsonville, OR	R	5,904	---	5,904
Bateman Creek, OR	R	7,428	---	7,428
Arrowhead Creek	R	7,867	---	7,867
Reed's Canyon	R	6,000	---	6,000
Calapooia River	R	6,000	---	6,000
D E. Fork Lewis River	R	822	---	822
Total Section 206		1,470,740	47,881	1,518,621

1/ Status: C = Construction; D = Planning and Design Analysis; F = Feasibility; P = Plans and Specifications; R = Preliminary Restoration Plan; X=Fiscal Close Out

TABLE 28-M FLOOD CONTROL ACTIVITIES WORK UNDER SPECIAL AUTHORITIES DISASTER PREPAREDNESS PROGRAM

(SEE SECTION 53 OF TEXT)

	Federal Funds Expended	Contributed Funds Expended
Disaster Preparedness Program (Category 100)		
Planning	408,476	0
Training and Exercise	0	0
Equipment, Facilities and Supplies	4,656	0
National Center for Expertise	0	0
Total Disaster Preparedness Program	413,132	0
Emergency Operations (Category 200)		
Response Operations	9,386	0
Post Flood Response	0	0
Acquisition of Supplies/Equip	0	0
Operational Deployment	0	0
Total Emergency Operations	9,386	0
Rehabilitation (Category 300)		
Federal Flood Control Works	45,611	0
Non-Federal Flood Control Works	0	0
Field Investigations	6,545	0
Initial Eligibility Inspections	0	0
Continuing Eligibility Inspections	0	0
Total Rehabilitation	52,156	0
Advance Measures		
Advance Measure Assistance	0	0
Field Investigations	2,112	0
Total Advance Measures	2,112	0
Reimbursement Activity		
Other Agencies	0	0
Other Corps Offices	310,509	0
Total Reimbursement Activity	310,509	0

TABLE 28-N PRINCIPAL DATA CONCERNING COLUMBIA RIVER NAVIGATION LOCK, SPILLWAY DAM, AND POWERPLANT

Project		
Bonneville Lock and Dam OR and WA - Lake Bonneville (See Section 37 of Text)	**NAVIGATION LOCK (NEW)**	
	Dimensions:	
	Clear Width of Chamber	86 Feet
	Greatest Length Available for Full Width	675 Feet
	Lift (Vertical):	
	At Extreme Low Water and Normal Pool Level	66 Feet
	At Normal River Stage	59 Feet
	At Extreme High Water	About 30 Feet
	Depth Over Miter Sills at Adopted Low Water	19 Feet
	Character of Foundation	Andesite
	Open to Navigation	March 1993
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	1938
	Capacity	1,600,000 CFS
	Elevation of Gate Sills on Crest of Spillway	23.3 Feet
	Height above Lowest Foundation	About 170 Feet
	Length of Dam Proper	1,090 Feet
	Length of Dam Overall	1,230 Feet
	Width at Base	200 Feet
	Gate Openings	18
	Crest Overflow (Above Mean Sea Level)	24 Feet Pool
	Elevation (Normal)(Above Mean Sea Level)	72 Feet
	POWERPLANT	
	Length (First Powerhouse)	1,027 Feet
	Length (Second Powerhouse)	953 Feet
	Width (First Powerhouse)	190 Feet
	Width (Second Powerhouse)	235 Feet
	Height (Roof to Bedrock) (First Powerhouse)	190 Feet
	Height (Roof to Bedrock)(Second Powerhouse)	200 Feet
	Generator (Station Unit)	1 @ 5,000 kW
	Generators (First Powerhouse)	1 @ 48,000 kW 1 @ 59,500 kW 8 @ 60,000 kW each
	Generators (Second Powerhouse)	8 @ 66,500 kW each
	Fishwater Supply Units (Second Powerhouse)	2 @ 13,100 kW each
	Total Rated Capacity	1,145,700 kW
	Speed	75 Revolutions per Minute
John Day Lock and Dam, OR and WA - Lake Umatilla (See Section 43 of Text)	**NAVIGATION LOCK**	
	Clear Width	86 Feet
	Clear Length	669 feet
	Lift:	
	Minimum	97 Feet
	Average	105 Feet
	Maximum	113 Feet
	Minimum Water Depth Over Sills	15 Feet
	Opened to Navigation	April 1968
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	March 1968
	Maximum Capacity	2,250,000 cfs
	Crest Elevation	210 Feet
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 ft. by 58.5 Ft.
	Number	20

TABLE 28-N (Cont'd) PRINCIPAL DATA CONCERNING COLUMBIA RIVER NAVIGATION LOCK, SPILLWAY DAM, AND POWERPLANT

Project		
	POWERPLANT	
	Length	1,975 Feet
	Width	243 Feet
	Generating Units:	
	Number Installed	16
	Space for Additional	4
	Rating, Each	135,000 kW
	Total Installed Capacity	2,160,000 kW
	Total Potential Capacity	2,700,000 kW
	Maximum Structural Height	235 Feet
	First Power-On-Line	July 1968
	IMPOUNDMENT	
	Elevations: Normal Operating Range	268-257 Feet
	Maximum	276 Feet
	Flood Control Storage	500,000 Ac.-ft.
	Lake Length	76.4 Miles
	Lake Water Surface Area At Elevation 268	55,000 Acres
	Navigation Channel, Depth by Width	15 Ft. by 250 Ft.
	Length of Shoreline	200 miles
	NAVIGATION LOCK	
The Dalles Lock and Dam, OR and WA - Lake Celilo (See Section 46 of Text)	Type	Single Lift
	Lift Normal	87.5 Feet
	Net Clear Length	675 Feet
	Net clear Width	86 Feet
	Normal Depth Over Upper Sill	20 Feet
	Minimum Depth Over Lower Sill	15 Feet
	Opened To Navigation	March 17, 1957
	SPILLWAY DAM	
	Type	Controlled
	Elevation of Crest	121 Ft. msl
	Top of Crest Gates	162 Ft. msl
	Number of Gates	23
	Size of Gates	50 by 43 Feet
	Height (Foundation to Crest)	120 Feet
	Design Flood	2,290,000 cfs
	POWERPLANT	
	Powerhouse Dimensions	240 by 2,150 feet
	Generators Main Units	14 @ 78,000 kW each 8 @ 86,000 kW each
	Fishwater Supply Units	2 @ 13,500 kW each
	Total Rated Capacity	1,807,000 kW
	Station Service Units	2 @ 3,000 kW each

TABLE 28-O 96-89X4045 APPROPRIATION BONNEVILLE POWER ADMINISTRATION

Project	Expenditures FY99	FY00	FY01	FY02	FY03	Total Cost To Sep 30, 2003
Bonneville	1,668,674	3,082,172	7,005,150	8,356,484	10,350,276	22,808,606
Columbia River Fish Mitigation	0	0	0	0	0	6,000
Cougar	3,992	2,287	169,559	537,337	1,499,576	2,229,267
Detroit	254,025	336,523	111,084	559,069	612,816	1,470,769
Green Peter	835,485	1,558,120	244,021	643,543	2,014,847	4,749,624
Hills Creek	1,976	28,381	124,865	679,804	722,124	892,353
John Day	1,813,742	1,523,451	2,711,551	4,263,967	3,317,866	10,136,916
John Day Rehab	811,937	2,202,667	685,634	0	0	3,857,532
Lookout	162,810	598,874	10,546	88,434	453,644	1,336,569
Lost Creek	0	0	0	0	0	2,323
The Dalles	2,229,793	2,033,790	3,005,658	2,231,404	4,139,142	18,163,389
Total	7,782,434	11,366,265	14,068,068	17,360,042	23,110,294	71,647,348

TABLE 28-P HYDROPOWER GENERATION

Project	FY03 Generation of Electricity in Megawatt-Hours (MWH)
Bonneville	4,481,173
The Dalles	6,111,187
John Day	8,492,595
Cougar	0
Detroit/Big Cliff	478,979
Green Peter/Foster	298,952
Hills Creek	151,187
Lookout Point/Dexter	340,484
Lost Creek	260,270
Total	20,614,827

TABLE 28-Q INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
(SEE SECTION 34 OF TEXT)

State/County/Location	Sponsor	River	Date of Last Inspection	Rating (1)
State of Oregon				
Clackamas County				
Dixon Farm	Lower Clackamas Water Control District	Clackamas	5/22/03	VG
Sleepy Hollow Location	Clackamas County	Sandy	4/17/03	E
Clatsop County				
Clatsop #15 Dr. Improv. Co.	Clatsop No. 15, Drainage Improvement Co.	Columbia	6/13/03	VG
Clatsop Co. Dr. Imp. Co. #1	Clatsop Co Drainage, Improvement Co No. 1	Columbia	4/15/03	VG
Clatsop Co. Dk. Dist. #5	Clatsop County Diking	Columbia	9/03/03	E
Clatsop Co. Dk. Dist. #7	Clatsop County Diking, District No. 7	Blind Slough	4/15/03	VG
Youngs River	Clatsop Co Diking, Improvement Co No. 9	Youngs	9/02/03	FD
Tucker/Battle Creek	Clatsop Co Diking Improvement Co No. 9	Youngs	9/02/03	P
Grant	Clatsop Co Diking Improvement Co No. 9	Youngs	9/02/03	VG
Tansy Point Location	Port of Astoria	Columbia	8/27/03	E
Warrenton Dr. Dist. #1	City of Warrenton	Columbia	8/27/03	VG
Warrenton Dr. Dist. #2	City of Warrenton	Skipanon	8/27/03	VG
Warrenton Dr. Dist. #3	City of Warrenton	Columbia	8/27/03	VG
Svenson Is Dist. Imprv. Co	Svenson Island District Improvement Company	Columbia	8/26/03	VG
John Day River Road Location	Clatsop County	John Day	5/20/03	E
Tansy R.R. Location	City of Warrenton	Columbia	8/27/03	E
Columbia/Multnomah County				
Sauvie Island	Sauvie Island Drainage Improvement Company	Columbia	6/04/03	E
Columbia County				
Scappoose Dr. Imp. Company	Scappoose Drainage Improvement Company	Columbia	3/18/03	E
Deer Island D. I. Company	Deer Island Drainage District	Columbia	7/22/03	VG
Rainier Water Imp District	Rainier Water Improvement District	Columbia	5/22/03	VG
Beaver Drainage Improv. Co.	Beaver Drainage Improvement Co., Inc.	Columbia	9/26/03	E
Magruder Dr. Improv. Co.	Magruder Drainage Improvement Co., Inc.	Columbia	10/06/02	VG
Midland Dr. Improv. Co.	Midland Drainage Improvement Co., Inc	Columbia	8/04/03	G
Marshland Dr. Improv. Co.	Marshland Drainage Improvement Co., Inc	Columbia	8/04/03	E
Webb District Improv. Co.	Webb District Improvement Company	Columbia	9/23/03	F
Woodson Drainage District	Woodson Drainage District	Columbia	9/23/03	E
Westland Dist. Improv. Co.	Westland District Improvement Company	Columbia	6/13/03	VG
Coos County				
Catching Inlet Dr Dist	Catching Inlet Drainage District	Catching Slough	9/09/03	VG
Deschutes County				
Bend Ice Boom	City of Bend	Deschutes	4/21/03	E
Douglas County				
Reedsport Levee	City of Reedsport	Umpqua	9/09/03	E
Jackson County				
Bear Creek	City of Medford	Bear Cr	8/04/03	E

TABLE 28-Q (Cont'd) INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
(SEE SECTION 34 OF TEXT)

State/County/Location	Sponsor	River	Date of Last Inspection	Rating (1)
Josephine County				
Pierce Riffle	Grants Pass Irrigation District	Rogue	8/04/03	E
Pierce Riffle U/S Ext.	Grants Pass Irrigation District	Rogue	8/04/03	E
Rogue River at Grants Pass	City of Grants Pass	Rogue	8/04/03	E
Lake County				
Paisley Revetment	City of Paisley	Chewaucan	4/22/03	VG
Lane County				
Rhododendron Drive	Lane County Public Works	Siuslaw	9/09/03	E
Amazon Creek	City of Eugene Public Works Department	Amazon	9/10/03	E
Lincoln County				
Depoe Bay	City of Depoe Bay	S. Depoe Bay Cr	9/08/03	VG
Mill Four	Mill Four Drainage District	Yaquina	9/08/03	E
Depoe Creek	Lincoln County Drainage District No. 1	Depoe Cr	9/08/03	E
Linn County				
Landfill Location	City of Albany	Calapooia	7/24/03	E
Marion County				
Mill Creek (Salem)	City of Salem Public Works Department	Mill Creek	7/24/03	E
Keizer River Wall	City of Keizer	Willamette	9/25/03	E
Multnomah County				
Sandy Dr. Improvement Co	Sandy Drainage Improvement Company	Columbia	9/03/03	E
Multnomah Co. Dr. Dist. #1	Multnomah County Drainage District No. 1	Columbia	9/03/03	E
Peninsula Dr. Dist. No. 2	Peninsula Drainage District No.2	Columbia	9/03/03	E
Peninsula Dr. Dist. No. 1	Peninsula Drainage District No. 1	Columbia	3/21/03	E
Tillamook County				
Sunset Drainage District	Sunset Drainage District	Nehalem	8/14/03	G
McDonald Road Location	Tillamook County Department of Emergency Services	Nehalem	5/20/03	VG
Wilson River (Hwy 101)	Tillamook County Department of Emergency Services	Wilson	5/20/03	E
West Makinster Road Location	Tillamook County Department of Emergency Services	Wilson	7/31/03	E
Stillwell Drainage District	Stillwell Drainage District	Tillamook/Trask	7/29/03	VG
Tone Road	Tillamook County Department of Emergency Services	Trask	7/31/03	VG
Beaver Creek	Tillamook County Department of Emergency Services	Beaver Cr	7/31/03	E
Pacific City	State of Oregon Aeronautics Division	Nestucca	7/30/03	G
Miami River	Tillamook County	Miami R	5/20/03	G
Umatilla County				
Pendleton Zone 2 Levees	Umatilla River Water Control District No	Umatilla	6/16/03	VG
Pendleton Levee Zone 1	City of Pendleton	Umatilla	6/17/03	VG
Simon Springs	City of Pendleton	Umatilla	6/17/03	E
Rattlesnake	City of Pendleton	Umatilla	6/17/03	VG

TABLE 28-Q (Cont'd) INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

(SEE SECTION 34 OF TEXT)

State/County/Location	Sponsor	River	Date of Last Inspection	Rating (1)
State of Washington				
Clark County				
Salmon Creek Location	Clark County	Salmon Cr	5/08/03	G
Washougal Area Levees	Port of Camas/Washougal	Columbia	9/05/03	E
Cowlitz County				
Port of Kalama	Port of Kalama	Columbia	9/19/03	E
Cowlitz Co Cons Dk Imp # 1	Cowlitz County Consolidated Diking Improv District No. 1	Cowlitz	5/29/03	E
Cowlitz Co Dr Imp # 1	Cowlitz County Drainage Improvement District No. 1	Columbia	5/29/03	E
Cowlitz Co Cons Dk Imp # 2	Cowlitz County Consolidated Diking Improv District No. 2	Lewis	5/21/03	E
Cowlitz Co Cons Dk Imp # 3	Cowlitz County Consolidated Diking Improv District No. 3	Cowlitz	5/29/03	E
Cowlitz Co Dk Impt # 15	Diking Improvement District No. 15 of Cowlitz County	Columbia	5/21/03	E
Castle Rock	City of Castle Rock	Cowlitz	3/26/03	E
Huntington Avenue Location	City of Castle Rock	Cowlitz	3/26/03	E
Lewis County				
Fulton Location	Lewis County Public Works Department	Cowlitz	4/22/03	E
Holder Location	Lewis County Public Works Department	Cowlitz	4/22/03	E
Kirkendoll Location	Lewis County Public Works Department	Cowlitz	4/22/03	E
Hopkins Creek Location	Lewis County Public Works Department	Cowlitz	4/09/03	E
Pacific County				
Megler Location	Washington State Department of Transportation	Columbia	8/28/03	E
Wahkiakum County				
Wahkiakum Co Cons Dk # 1	Consolidated Diking District No. 1 of Wahkiakum County	Columbia	3/25/03	E

Rating:
(1) E = Excellent VG = Very Good G = Good F = Fair P = Poor FD = Flood Damage

SEATTLE, WA DISTRICT

This District comprises Washington State except southern and southeastern portions, northern Idaho, and northwestern Montana, embraced in drainage basins tributary to Pacific Ocean south of international boundary to Cape Disappointment, and to the Columbia River above Yakima River, inclusively.

IMPROVEMENTS

Navigation

Shore Protection

Flood Control

Multiple-Purpose Power

Environmental

General Investigations

Other Activities

Tables

Navigation

1. ANACORTES HARBOR, WA

Location. On northern point of Fidalgo Island in Puget Sound, 17 miles south of Bellingham, WA, and 64 miles north of Seattle. The main harbor is on Guemes Channel. (See NOAA Survey Chart 18427.)

Existing project. Channel in Capsante Waterway, 12 feet deep and 150 to 250 feet wide, between east side of Q avenue and deep water in Fidalgo Bay, a distance of 2,850 feet; a mooring basin 12 feet deep, 570 feet wide, and 960 feet long adjacent to north side of Capsante Waterway, protected by two pile breakwaters, each 470 feet long, east and southeast of basin; and a navigation channel 18 feet deep, 150 feet wide, extending 5,180 feet from deep water in Guemes Channel to the west shore of Fidalgo Bay (construction under authority of Section 107, P.L. 86-645. Construction cost for this feature is recorded in Table 29-C). Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water is 8.2 feet. Extreme range is about 15.5 feet. Project was completed in January 1977. (For further details, see Annual Report for 1977).

Local cooperation. Fully complied with.

Terminal facilities. See Port Series No. 37. Surveys are displayed at U.S. Army Corps of Engineers, Water Resources Support Center, Navigation Data Center.

Operations during fiscal year. Maintenance, hired labor: Routine coordination with Port of Anacortes, city of Anacortes, and navigation users.

Maintenance, contract: A small contract for repairs to the north and south timber pile breakwaters was completed in August at a cost of $22,000. New timber wales were installed, pile heads sealed, and new wire rope secured to ten batter-pile dolphins.

2. BELLINGHAM HARBOR, WA

Location. Part of Bellingham Bay, an arm of Puget Sound, at Bellingham, in northwestern Washington. (See NOAA Survey Chart 18424.)

Existing project. Channel 30 feet deep in Whatcom Creek Waterway from deep water to head of harbor, 363.2 feet wide to 750 feet from inner end, thence 18 feet deep for inner 750 feet; I&J Street Waterway, a channel 100 feet wide and 18 feet deep at mean lower low water for a distance of 3,200 feet; Squalicum Creek Waterway, including dredging an entrance channel 200 feet wide and 26 feet deep from deep water in the bay to main pier-head line, and maintenance of southerly half and westerly end of Squalicum Creek basin to 26 feet deep, provided that no dredging can be done within 75 feet of wharves, piers, or similar structures; and small-boat basin adjacent to Squalicum Creek Waterway by construction and maintenance of two sections of rubble-mound breakwater with combined length of 5,400 feet, including maintenance of minimum depths of 12 feet in entrance to basin. Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water is 8.6 feet. Extreme range is about 16 feet. The small-boat basin expansion from 3,900 feet to 5,400 feet at Squalicum Creek Waterway and channel at I&J Street Waterway were constructed under authority of Section 107, P.L. 86-645. Construction costs for these features are recorded in Table 29-C. Project was completed in October 1980. (For further details see Annual Report for 1981. For details relating to previous project see page 797 of Annual Report for 1907.)

Local cooperation. Fully complied with. Requirements are described in full on page 38-2 of Annual Report for 1980.

Terminal facilities. See Port Series No. 37. Surveys are displayed at U.S. Army Corps of Engineers, Water Resources Support Center, Navigation Data Center.

Operations during fiscal year. Maintenance, hired labor: Channel condition surveys were conducted. Prepared plans and specifications for a maintenance dredging contract in Squalicum Waterway.

Maintenance, contract: A contract was awarded in September for clamshell dredging in Squalicum Waterway. Work will be under way.in FY 2004.

3. EDIZ HOOK, WA

Location. Ediz Hook and city of Port Angeles are on the Strait of Juan de Fuca in Clallam County, WA, about 100 miles northwest of Seattle. (See NOAA Survey Chart 18468.)

Existing project. Provides for about 16,400 linear feet of rock revetment, together with initial beach replenishment and periodic nourishment. Project was completed in October 1978. (For further details, see Annual Report for 1979.)

Local cooperation. Fully complied with.

Terminal facilities. See Port Series No. 37. Surveys are displayed at U.S. Army Corps of Engineers, Water Resources Support Center, Navigation Data Center.

Operations during fiscal year. Maintenance, hired labor: Inspection, nearshore hydrographic survey and coordination with local sponsor, city of Port Angeles.

Maintenance, contract: A continuing contract was completed in October 2002 for beach nourishment and repairs to the revetment on Ediz Hook at a cost of $549,000. The next scheduled maintenance will be in September 2007.

4. EVERETT HARBOR AND SNOHOMISH RIVER, WA

Location. On Port Gardner Bay, at northern end of Possession Sound, an arm of Puget Sound at Everett, in northwestern Washington; and Snohomish River for 6.3 miles above mouth. (See NOAA Survey Chart 18444.)

Existing project. Training dike extending from a point opposite 23rd Street northward 12,550 feet to outlet of Snohomish River, with spur dike extending 400 feet to pier-head line from north end of main dike; spur dike extending 1,410 feet westward from Preston Point; removal of a section of training dike north of Snohomish River outlet; channel 150 to 425 feet wide and 15 feet deep from deep water in Port Gardner Bay to 14th Street dock; thence a settling basin 700 feet wide, 1,200 feet long, and 20 feet deep, thence a channel 150 feet wide and 8 feet deep upriver to head of Steamboat Slough, a total distance of about 6.3 miles; settling basin within upper channel reach about 1 mile long with a capacity of 1 million cubic yards and maintaining East Waterway to 30 feet deep. Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water is 11.1 feet. Extreme tidal range is an estimated 19 feet. Project was completed in April 1963. (For further details, see page 1683 of Annual Report for 1963. For details relating to previous projects, see page 704 of Annual Report for 1905, page 2005 of Annual Report for 1915, and page 1883 of Annual Report for 1938.)

Local cooperation. Fully complied with. Requirements are described in full on page 38-3 of Annual Report for FY 1981.

Terminal facilities. See Port Series No. 37. Surveys are displayed at U.S. Army Corps of Engineers, Water Resources Support Center, Navigation Data Center.

Operations during fiscal year. Maintenance, hired labor: Conducted pre- and post-dredge hydrographic surveys including the Naval Station, Everett berthing areas. Completed environmental studies to establish the presence or absence of bull trout in the navigation channel. Collected samples for the characterization of the downstream settling basin for open water disposal and possible re-use of sediment as cap at superfund site.

Maintenance, contract: None.

5. FRIDAY HARBOR, WA

Location. Friday Harbor is located on the eastern shore of San Juan Island on the inland waters of northwestern Washington, about 28 nautical miles east of Victoria, British Columbia, and 60 nautical miles north of Seattle, WA. San Juan Island is one of over 170 islands in the San Juan Archipelago. Friday Harbor is the San Juan Island county seat and a United States Customs Port of Entry. (See NOAA Survey Chart 18425.)

Existing project. Concrete floating breakwater (1,600 feet) to protect the existing port facilities and to allow the Port of Friday Harbor to provide 294 additional permanent moorage spaces and 44 additional transient spaces. Construction was completed in March 1984.

Local cooperation. Fully complied with. Requirements are described in full on page 38-4 of Annual Report for 1981.

Operations during fiscal year. Maintenance, hired labor: Routine coordination with the Port of Friday Harbor, U.S. Coast Guard, and navigation users. New caution signs were posted on the breakwater to prevent boats from anchorage within 300 feet of the floating breakwater structure.

Maintenance, contract: None.

6. GRAYS HARBOR AND CHEHALIS RIVER, WA

Location. Harbor lies at mouth of Chehalis River, in southwestern part of Washington, 45 miles north of entrance to Columbia River. Chehalis River rises in southwestern part of Washington about 40 miles east of Pacific Ocean, flows generally northwesterly and empties into eastern part of Grays Harbor. (See NOAA Survey Chart 18502.)

Existing project (including navigation improvements to date). Provides an entrance channel across the bar and through the entrance 600 to 1,000 feet wide and 38 to 46 feet deep, secured by a south jetty 13,734 feet long and a north jetty 17,200 feet long, and by annual maintenance dredging; maintenance of channel 36 feet deep and 350 feet wide from deep water in Grays Harbor 14 miles upstream to Port of Grays Harbor terminals at Cow Point; thence 32 feet deep and 200 feet wide, suitably widened at bends, to the head of deep draft navigation at Cosmopolis, a distance of 4.1 miles; a turning basin 36 feet deep, 900 feet wide, and 1,000 feet long opposite the Port of Grays Harbor terminals at Cow Point; a turning basin 30 feet deep, 550 feet wide, and 1,000 feet long near upstream end of 32-foot channel at Junction City; three breakwaters at, and maintenance of entrance channel to Westhaven Cove; protection of Point Chehalis for an exposed length of about 7,500 feet; and removal of 350-foot southwestern extension of the breakwater, replacing it with an 865-foot northeastern extension, and adding a 200-foot spur breakwater along the southerly entrance, constructed under authority of Section 107, P.L. 86-645. Construction cost for this feature is recorded in Table 29-C. Plane of reference is mean lower low water. Tidal range between mean lower low water and mean higher high water is 8.9 feet at Point Chehalis, 10.1 feet at Aberdeen, and 8.1 feet at Montesano. Extreme range is 17.5 feet at Point Chehalis, 17.8 feet at Aberdeen, and 23.8 feet at Montesano (river flood of 1935). (For details

relating to previous projects, see pages 2002-03 of Annual Report for 1915 and page 1863 of Annual Report for 1938.)

Improved project. Authorized by Section 202 of the Water Resources Development Act of 1986. Phase I of project construction was started in 1990 and completed in 2000. Final fiscal requirements remain for Phase I, and coordination with Port of Grays Harbor continues. A second project phase to deepen the improved downstream channel to the 38-foot fully authorized depth is possible in the future if project economics and environmental considerations warrant and funding is available.

Local cooperation. Fully complied with. Requirements for improved project are described in full on page 29-4 of Annual Report for 2001.

Terminal facilities. See Port Series No. 35. Surveys are displayed at U.S. Army Corps of Engineers, Water Resources Support Center, Navigation Data Center. In addition, the Port of Grays Harbor has completed construction contracts to redevelop its T-2 terminal into a bulk agricultural commodity loading facility.

Operations during fiscal year. New work, hired labor: Coordinated with Port of Grays Harbor (local sponsor), resource agencies, and Grays Harbor pilots.

Maintenance, hired labor: Channel condition surveys were conducted throughout the year. The Corps hopper dredge Essayons dredged in the entrance channel, removing 137,689 cy at a cost of $609,000. Dredged material was placed beneficially at the South Beach disposal site except for 12,300 cy placed at the 3.9 mile, southwest site. A North Jetty Performance and Entrance Navigation Channel Maintenance, Grays Harbor, WA, report was published, dated September 2003. Prepared plans and specifications for inner harbor maintenance dredging. Crab mitigation sites were surveyed for juvenile crab to determine mitigation credit. Supervised contract work.

Maintenance, contract: Maintenance dredging of the outer harbor by hopper dredge was completed at a cost of $1,073,273 with 329,106 cy of material being placed at the Half Moon Bay disposal sites and 53,310 cy placed at the Pt. Chehalis disposal site. The FY 2002/03 clamshell dredging contract for the maintenance of the Inner Harbor was completed at a cost of $3,294,627. Crab mitigation was performed with 12,000 cy of oyster shell being placed into the crab habitat mitigation sites at a cost of $464,000. A total of 1,126,513 cy were disposed into the South Jetty and Pt. Chehalis disposal sites.

7. LAKE CROCKETT, WA

Location. The harbor is on the west side of Whidbey Island, about 35 nautical miles north of Seattle, WA. The lake lies parallel to Admiralty Bay and is separated from it by a narrow strip of gravel beach. (See NOAA Survey chart 18441.)

Existing project. Provides for a basin in Lake Crockett with an area of about 6 acres and 25 feet deep at mean lower low water, connected with Admiralty Bay by a channel of the same depth and 200 feet wide, protected by a breakwater; and navigation improvement by dredging, constructed under authority of Section 107, P.L. 86-645. Construction cost for this feature is recorded in Table 29-C (Keystone Harbor, Admiralty Inlet). The diurnal tidal range in Admiralty Bay is 8.4 feet, and the extreme range is about 16.5 feet. Project was completed in March 1993. (For further details, see Annual Report for 1993.) Recreational facilities at project under cost sharing agreement with Washington State Parks and Recreation Commission include the following construction and improvements: construct a 35-unit camping loop and restroom, new boat ramp handling facility, breakwater, a restroom in the day-use area and porta-potty dumps for boats; and expand day-use facility and add rip-rap at the construction site.

Local cooperation. None required.

Terminal facilities. One publicly owned passenger and automobile ferry landing within the dredged basin is open for public use, and is adequate for existing commercial traffic. The basin contains two publicly owned boat ramps open for public use. The ramps are adequate for recreational craft.

Operations during fiscal year. Maintenance, hired labor: Channel condition surveys were conducted during the year. Real Estate Division conducted an assessment of lease agreements with Fort Casey State Park authorities.

Maintenance, contract: None.

8. LAKE WASHINGTON SHIP CANAL, WA

Location. Entirely within city of Seattle and extends from Puget Sound through Shilshole Bay, Salmon Bay, Lake Union, Portage Bay, and Union Bay to deep water in Lake Washington. (See NOAA Survey Chart 18447.)

Existing project. Provides for a double lock and fixed dam from gated spillway and necessary accessory works, including fish ladder, at the Narrows at entrance to Salmon Bay, about 1.25 miles from deep water in Puget Sound; for a channel 34 feet deep and 300 feet wide from Puget Sound to Burlington Northern Railway bridge, about 5,500 feet, with a passing basin 34 feet deep and log basin 8 feet deep at turn below railway bridge; then 34 feet deep and 150 feet to 200 feet wide to locks, about 900 feet; and a guide pier 600 feet long; for revetment of canal banks between locks and Lake Union and between Lakes Union and Washington; and for a channel 30 feet deep with a width of 100 feet from locks to Lake Union, 200 feet thence to Portage Cut, 100 feet

through Portage Cut, and thence 200 feet wide through Union Bay to Lake Washington. Section included in project is about 10 miles long. Plane of reference is mean lower low water. Extreme tidal range is 19.3 feet. Range between mean lower low water and mean higher high water is 11.3 feet, and between mean lower low water and extreme low water is 4.6 feet. Ordinary fluctuation in upper pool is 24 inches; extreme fluctuation has been 3.6 feet. Principal features of double lock and dam are set forth in Table 29-K. Project was completed in 1934. (For further details, see Annual Report for 1935. For details relating to previous projects, see page 2003 of Annual Report for 1915, and page 1880 of Annual Report for 1938.)

Local cooperation. Fully complied with.

Terminal facilities. See Port Series No. 36. Surveys are displayed at U.S. Army Corps of Engineers, Water Resources Support Center, Navigation Data Center.

Operations during fiscal year. Maintenance, hired labor: Locks were operated and maintained all year, conducting 16,322 lockings, passing 10,059 commercial vessels, 46,824 pleasure vessels, and 1,354,200 tons of commerce. The fish ladder passed more than 417,358 fish, and there were 1,353,693 project visitors.

Maintenance, contract: Contracts for upgrade of the large lock gate machinery, the small lock guard gate replacement, repaving of project roads, repair of failing bank along Montlake Cut, and replacement of the center gate pintle bearings on the large lock were completed.

9. NEAH BAY, WA

Location. On south side of the Strait of Juan de Fuca, about 6 miles east of Cape Flattery, at the entrance to the Strait from the Pacific Ocean, and about 80 miles west of Port Angeles, WA. (See NOAA Survey Charts 18480, 18484 and 18485.)

Existing project. Provides for a rubble-mound stone breakwater about 8,000 feet long between Waadah Island and the westerly shore of the bay, reinforcement of existing rock revetment extending approximately 2,200 feet west from Baada Point, and about an 800-foot extension of the revetment westward. Tidal range between mean lower low water and mean higher high water is 8.2 feet. Project was completed in July 1956. (For further details, see Annual Report for 1957.)

Local cooperation. Fully complied with.

Terminal facilities. There are six wharves at Neah Bay, including two owned by the United States which are used by the Coast Guard, and four privately owned wharves, three of which are open to general public use to accommodate small commercial fishing vessels. In addition to the wharves, there is a facility for dumping and rafting logs. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance, hired labor: Hydrographic surveys were conducted in the vicinity of the breakwater. Conducted aerial survey to collect topographic information. A hired labor contract was used for excavation of the fish gap at the Neah Bay Marina in February. Work consisted of excavating approximately 2,500 cy to return the fish gap to approximately -2 feet mean lower low water elevation. Cost of contract work was $32,000.

Maintenance, contract: None.

10. PROJECT CONDITION SURVEYS

Hydrographic surveys and inspections to determine navigation conditions at boat basins, small navigation projects, and channels not funded on a project basis for the current fiscal year. Soundings and visual inspections in subject areas are conducted in order to evaluate shoaling conditions. Hydrographic charts are prepared and distributed. Other work performed includes preparation and updating of base maps, channel alignments, and other computations needed to accommodate changes in vertical or horizontal datums. Fiscal year costs were $242,010. Total costs to date are $5,192,166.

SURVEYS CONDUCTED

Bellingham Harbor	October 2002, March 2003

11. PUGET SOUND AND ITS TRIBUTARY WATERS, WA

Location. Puget Sound is in the western part of Washington. Cities of Seattle, Tacoma, Olympia, Everett, Bellingham, and many small towns are on its bays and inlets. (See NOAA Survey Charts 18440, 18441, and 18448.)

Existing project. Maintenance of Puget Sound and its tributary waters by snagging and dredging; and removal, in cooperation with the U.S. Coast Guard and city of Seattle, of floating debris from the Seattle Harbor area. Work consists of collecting large pieces of drift, waterlogged pilings, logs and other debris considered hazardous to navigation from Puget Sound and Federally authorized channels. (For details relating to previous projects, see page 2003 of Annual Report for 1915 and page 1869 of Annual Report for 1938.)

Local cooperation. None required. Cities of Seattle, Tacoma, Olympia, Everett and Bellingham and the State of Washington are cooperating in a program for control of floating debris in their harbors and setting up collection sites for our debris vessel.

Terminal facilities. Terminal facilities at numerous localities on Puget Sound and its tributary waters are, in general, considered adequate for existing commerce.

Operations during fiscal year. Maintenance, hired labor: The debris vessel Puget operated continuously throughout

Puget Sound and its tributary waters and removed approximately 2,381 tons of floating debris and hazards to navigation. Debris was off-loaded aboard barges at Lake Washington Ship Canal and disposed of by contract. Snagging operations were accomplished at Blaine Harbor, Bellingham Harbor, Swinomish Channel, Skagit River, Everett Harbor, Snohomish River (upstream to town of Snohomish), Lake Washington Ship Canal, Lake Washington, Tacoma Harbor, Olympia Harbor, Duwamish River, and Elliott Bay. Puget also conducted vibracore sampling on Duwamish Waterway and Snohomish River and clamshell dredge sampling on Swinomish River for future dredging.

Maintenance, contract: Over 2,000 tons of harbor debris were disposed of at a cost of $181,000. Contractor continues to recycle much of the debris, reducing the cost of disposal by contract. Remainder of debris is placed in a demolition landfill or recycled through other government agencies.

12. QUILLAYUTE RIVER, WA

Location. River is formed by junction of Soleduck and Bogachiel Rivers, in northwestern Washington, and flows westerly 5 miles to Pacific Ocean at La Push, about 30 miles south of Cape Flattery. (See NOAA Survey Chart 18480.)

Existing project. Provides for: jetty 15 feet high on easterly side of river mouth and a dike on westerly side, with a view of stabilizing entrance; channel 10 feet deep and 100 feet wide extending 2,000 feet upstream from deep water; basin 10 feet deep, 300 to 425 feet wide, and 2,400 feet long upstream of channel; and maintenance of an ocean spit. Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water at La Push is 8.3 feet. Extreme range is about 15 feet. The spit is nourished with dredged material in conjunction with channel dredging. The spit was rehabilitated with quarry rock in 1974, in 1979-80, and in 1982; in addition, a 500-foot breakwater section paralleling the channel and extending the spit was constructed. In 1995, the revetment on the downstream end of the ocean spit was extended 200 feet. In 1996, after the river breached the natural spit, the revetment on the ocean spit was extended approximately 1,700 feet to the north, and the boat basin training wall was raised from elevation +9.0 to elevation +16.0 - all under O&M authority. Project was completed in February 1997.

Local cooperation. Fully complied with.

Terminal facilities. There is one Quileute Tribe-owned dock at La Push, near the mouth of the Quillayute River. There is also a protected boat basin owned by the Quileute Tribe Port Authority which is used by fishing boats, pleasure craft, and the Coast Guard, which has a separate pier.

Operations during fiscal year. Maintenance, hired labor: Hydrographic condition surveys were conducted.

Maintenance, contract: A contract was awarded and completed for dredging of the navigation channel and boat basin. Approximately 54,000 cy were dredged in February at a cost of $507,000.

13. SEATTLE HARBOR, WA

Location. Harbor at Seattle, WA, includes all waterways within city limits. Chief anchorage basin is Elliott Bay, an arm of Puget Sound. (See NOAA Survey Chart 18450.)

Existing project. Maintenance of East and West Waterways, 34 feet deep and 750 feet wide for 6,500 and 5,200 feet, respectively, from pier-head line in Elliott Bay, the 30-foot by 200-foot-wide channel from West Waterway to 1st Avenue South Bridge, and the 20-foot by 150-foot-wide channel from 1st Avenue South Bridge to 8th Avenue; dredging Duwamish Waterway 150 feet by 15 feet from 8th Avenue to a point about 1.4 miles above 14th Avenue South Bridge, and turning basin 500 by 250 feet and 15 feet deep at the upper end of the waterway; maintenance of East Waterway between upper end of 750-foot section and Spokane Street, 34 feet deep, 700 feet long and 400 feet wide, and a turning basin, including head of East Waterway at junction of waterways south of Chicago, Milwaukee, St. Paul & Pacific Railroad bridge, to 30 feet deep, after these sections of waterway are dredged by local interests to full project dimensions. Total length of all waterways included in project is about 7.5 miles. Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water is 11.3 feet. Extreme tidal range is 19.3 feet. Project was completed in 1931, excluding maintenance of East Waterway above the 750-foot section. (For further details, see Annual Report for 1932.)

Local cooperation. Fully complied with. Local sponsor has no maintenance responsibility.

Terminal facilities. See Port Series No. 36. Surveys are displayed at U.S. Army Corps of Engineers, Water Resources Support Center, Navigation Data Center.

Operations during fiscal year. Maintenance, hired labor: Hydrographic pre- and post-dredge surveys of the turning basin area and condition surveys of the East Waterway were conducted. Turning basin sediment characterized for disposal at an open-water site or for use as cap at a superfund site.

Maintenance, contract: None.

14. SWINOMISH CHANNEL, WA

Location An inland passage, 11 miles long, between Saratoga Passage and Padilla Bay, in northwestern part of Washington, about 60 miles north of Seattle. (See NOAA Survey Charts 18400, 18427 and 18421.)

Existing project. A channel 100 feet wide and 12 feet deep for 11 miles from deep water in Saratoga Passage to deep water in Padilla Bay, by dredging and dike construction where necessary; and removal of projecting rocky points of McGlinn and Fidalgo Islands obstructing navigation at "Hole-in-the-Wall". Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water is 11.5 feet at south end of channel, 8.4 feet at north end, and 10 feet at La Conner. Extreme tidal range is about 19.5 feet at south end of channel and about 16 feet at north end. Project was completed in March 1965. (For further details, see Annual Report for 1965.)

Local cooperation. Fully complied with.

Terminal facilities. There are 18 wharves, docks, and piers on Swinomish Channel, all but 3 of which are privately owned. Of these, one is used for handling general cargo; five are used exclusively for moorage, unloading and servicing of fishing vessels; two are used for handling petroleum products; three facilities are used for log dumps; and two for handling non-metallic minerals. Three publicly owned facilities for launching, mooring, and servicing small craft are within the city limits of La Conner.

Operations during fiscal year. Maintenance, hired labor: Maintained project coordination with Swinomish Tribal Community, Port of Skagit County, Port of Anacortes, U.S. Coast Guard, and navigation users. Channel condition surveys were conducted. Also coordinated with the town of LaConner and Washington State Department of Natural Resources on matters of navigation safety related to moorage and development along the Federal channel. Prepared plans and specifications for clamshell maintenance dredging contract.

Maintenance, contract: A contract was awarded in September for clamshell dredging. Work will be under way in FY 2004.

15. WILLAPA RIVER AND HARBOR AND NASELLE RIVER, WA

Location. Willapa Harbor consists of lower reaches of Willapa River and Bay, an inlet of Pacific Ocean about 30 miles north of mouth of Columbia River in Washington. Willapa River rises about 30 miles east of harbor, flows generally westerly, and empties into the bay. Naselle River enters the bay near its southerly end. (See NOAA Survey Chart 18504.)

Existing project. Provides for: channel over bar at mouth of Willapa Bay, 26 feet deep and at least 500 feet wide; channel 24 feet deep and 200 feet wide from deep water in Willapa Bay to foot of Ferry Street at South Bend, thence 300 feet wide to westerly end of narrows, thence 250 feet wide to forks of river at Raymond, including a cutoff channel 3,100 feet long at narrows and a closing dike at Mailboat Slough; channel 24 feet deep and 150 feet wide up south fork to deep basin above Cram Lumber Mill, and up north fork to 12th Street, with a turning basin 250 feet wide, 350 feet long, and 24 feet deep at latter point; channel 10 feet deep and 40 feet wide from deep water in Palix River to Bay Center dock, with widening at shoreward end to provide a small mooring basin; mooring basin 15 feet deep, 340 feet wide, and 540 feet long adjacent to port wharf at Tokeland; entrance channel at Nahcotta 10 feet deep and 200 feet wide, and mooring basin 10 feet deep, 500 feet wide, and 1,150 feet long, protected by a rubble-mound breakwater about 1,500 feet long; and removal of snags, piles, and other obstructions in navigable channel of Naselle River between Naselle and mouth. Project includes about 26 miles of channel from entrance through Willapa River forks, 2,800 feet of Palix River-Bay Center channel, and 9 miles of Naselle River upstream of U.S. Highway 101 Bridge. Plane of reference is mean lower low water. Tidal range between mean lower low water and mean higher high water is 8.9 feet at Toke Point, 9.9 feet at Raymond, 8.9 feet at Bay Center, and 10.8 feet near Naselle. Extreme range is 18 feet at Toke Point, 19.3 feet at Raymond, 16 feet at Bay Center, and 18 feet near Naselle. Project was completed in November 1958. (For further details, see Annual Report for 1959. For details relating to previous projects, see page 968 of Annual Report for 1910, page 2001 of Annual Report for 1915, and page 1861 of Annual Report for 1938.)

Local cooperation. Fully complied with.

Terminal facilities. There are 24 wharves on Willapa River and Harbor, including 5 in Willapa Bay, 4 in Bay Center, 12 in Raymond and South Bend, and 1 in Tokeland. Two of the wharves at Raymond and South Bend are suitable for use by ocean-going vessels. One of these is publicly owned and operated as a general cargo terminal, and one is located at a sawmill. The other wharves, including three which are publicly owned and operated, are used by shallow-draft vessels. These facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance, hired labor: Frequent condition surveys on the Willapa bar channel were performed at the request of the U.S. Coast Guard. Continued monitoring of the alignment of the Willapa bar thalweg.

Maintenance, contract: None.

Navigation activities pursuant to Section 107, Public Law 86-645 (preauthorization).

Fiscal year costs were: Ocean Shores Marina, WA, $-2,279; Section 107 Coordination, $9,778; a total of $7,499. In addition, $34,067 in contributed funds were expended for Ocean Shores Marina, WA.

Navigation activities pursuant to Section 111, Public Law 90-483 (preauthorization).

Fiscal year costs were: Whitcomb Flats, WA, $8,076.

Shore Protection

16. SHOALWATER BAY, TOKELAND, WA

Location. Shoalwater Bay and the Shoalwater Bay Tribe Reservation are located on SR 105 on the north shore of the mouth of Willapa Bay, Pacific County, WA, approximately 104 miles southwest of Seattle, WA.

Existing project. Evaluation of coastal erosion reduction in Willapa Bay from Tokeland to North Cove in general, and at the Shoalwater Bay Tribe Reservation specifically. Storm events have caused the Tribe to lose much of its intertidal shellfish habitat and experience some uplands damage.

Local cooperation. None required.

Operations during fiscal year. New work, hired labor: Completed survey work, finalizing project base map. Completed statements of work for U.S. Geologic Survey (USGS) and Engineering Research and Development Center (ERDC). Continued coordination with Tribe and consultants. USGS continued geologic and hydrodynamic investigations and documenting historic beach and bathymetric conditions/changes. ERDC continued model calibration.

New work, contract: None.

Shore protection activities pursuant to Section 103, Public Law 874, 87th Congress, as amended (preauthorization).

Fiscal year costs were: Vashon Island Seawall, WA, $24,487.

Flood Control

17. COEUR D'ALENE RIVER (SOUTH FORK), WALLACE, ID

Location. Project is located along the left bank of the south fork of the Coeur d'Alene River in Wallace, Idaho.

Existing project. The retaining wall, which lines the riverbank, is collapsing in stages. Approximately 700 feet of wall will be replaced with a mix of concrete and gabion walls. Project is 60 percent complete, with total completion scheduled for 2004.

Local cooperation. Under current cost sharing requirements, the local sponsor (city of Wallace) will provide 35 percent of project cost. A Project Cooperation Agreement (PCA) was signed on August 02, 2002.

Operations during fiscal year. New work, hired labor: Executed PCA, completed design work, acquired land, advertised and awarded construction contract.

New work, contract: A contract was awarded to construct the new wall.

18. HOWARD A. HANSON DAM, WA

Location. Green River, in northwestern Washington, flows westerly for 40 miles to Auburn, thence northerly 32 miles to its mouth in Elliott Bay at Seattle. Dam is at river mile 64, 6 miles southeast of Kanaskat, and 1 mile downstream from mouth of north fork. (See Geological Survey topographic sheet, "Cedar Lake Quadrangle, WA".)

Existing project. Rock-fill dam about 235 feet high, with gated spillway having a concrete weir at elevation 1,176 feet above mean sea level and top of gates at elevation 1,206, creating a reservoir with capacity of 106,000 acre-feet. Dam along crest is about 675 feet long. Project is designed to control flooding in Green River valley to alleviate agricultural and urban flood damage, and make possible further expansion of Seattle industrial area. It also supplements Tacoma water supply which was included as a betterment. Project was completed in June 1963. (For further details, see Annual Report for 1963.) Under the dam safety assurance program, the reservoir outlet control tower and bridge were strengthened to withstand the maximum, credible earthquake. Work was completed in FY 1998.

Local cooperation. Fully complied with.

Operations during fiscal year. Maintenance, hired labor: Operation continued all year. Routine maintenance was accomplished on roads, gages, debris booms, ditches, power line, and other project features. Stilling basin inspection was accomplished. Work continued on water quality and sediment surveys. A new work barge used to collect debris throughout the reservoir was purchased and placed in service. Design for a new radial gate-holding device was completed.

Maintenance, contract: Awarded contract for new radial gate-holding device.

19. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Inspections are made of Federally constructed local flood protection projects, which are maintained by local interests, and agencies responsible for their operation and maintenance are advised of any needed repairs. During the fiscal year, inspections were made on Chehalis River at Aberdeen, Dungeness River at Dungeness, Green River at Tukwila and

Kent, Lummi Shore at Bellingham, Okanogan River at Omak and Oroville, Sammamish River at Redmond, Shelton Creek at Shelton, Skykomish and Wallace Rivers at Startup, Swinomish Channel at LaConner, American Lake, Wynoochee Dam and Yakima River at Yakima in Washington State; Lightning Creek at Clark Fork, Placer Creek at Wallace, Coeur d'Alene River at Coeur d'Alene, and St. Joe River at St. Maries in Idaho; and Clark Fork River at Missoula in Montana. Fiscal year costs were $252,823. Total costs to date have been $2,669,905.

20. MUD MOUNTAIN DAM, WA

Location. On White River, principal tributary of Puyallup River, near Mud Mountain, 28 miles above its confluence with Puyallup River, and 38 miles above mouth of Puyallup River. Dam is 6 miles upstream and southeast of Enumclaw, in northwestern Washington, and 38 miles east of Tacoma. (See Geological Survey topographic sheet "Cedar Lake Quadrangle, Washington".)

Existing project (including dam safety assurance improvements to date). Rock-fill dam, 700 feet long at crest elevation, rises 432 feet above bedrock. Reservoir has storage capacity of about 106,000 acre-feet. Flood control outlet works are in right abutment and permit an authorized, controlled discharge of 17,600 cubic feet per second through two concrete-lined tunnels, with a maximum capacity discharge of 21,500 cfs. Uncontrolled discharge over the spillway is maximum capacity for 245,000 cubic feet per second. Project affords flood protection to White and Puyallup River valleys and protects Tacoma industrial district, in conjunction with Puyallup River project at Tacoma, against floods about 50 percent greater than maximum discharge of record. Original project was completed in June 1953. To date, the Corps has constructed two vista areas, a picnic area, a wading pool, and playground adjacent to the project office, a reservoir access point for hunters and fishermen, and a 1,760-foot trail leading to the lower vista area. Installation of an approximately 400-foot-deep concrete cutoff wall in the core of the dam was completed in November 1990 under the major rehabilitation program. Under dam safety assurance, spillway walls were raised, the dam crest was heightened, river diversion facilities required for excavation for the new tower were completed, the 9-foot diameter and the 23-foot diameter tunnels were refurbished, and a new reservoir outlet tower was constructed. This construction was completed in 1995.

Local cooperation. None required.

Operations during fiscal year. Maintenance, hired labor: Project features were operated all year. Maintenance was accomplished on dam facilities, intake structure, gages, debris booms, power lines, roads, ditches, hiking trails, vista observation deck, recreation area, and fish facilities. Approximately 28,921 fish were transported from the fish collection facility to the upstream release point. There were 67,859 project visitors. A new work barge used to collect debris throughout the reservoir was purchased and placed in service. All picnic shelters were replaced.

Maintenance, contract: Construction of a new maintenance shop was completed.

Dam Safety Assurance. New work, hired labor: Study to identify problem areas with the new dam safety features is complete. New studies include additional tunnel armor, modified gate cylinders, new intake stop logs, and demolition of old intakes. Supervised construction work.

New work, contract: Construction continued on right bank drainage to help stabilize slope above new intake tower.

21. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Flood control storage space was available in Hungry Horse Reservoir, MT, Flathead Lake, MT (controlled by Kerr Dam), Grand Coulee project, WA, Wynoochee Dam, WA, Upper Baker and Ross Reservoirs, WA. Issues relating to project operations were addressed. Regulation instructions were provided for flood control operations. Guidance forecasts were made during the flood control season, as required. Daily and/or hourly data were collected and tabulated as required to check compliance with operating criteria. Coordination necessary in preparation or revision of reservoir regulation manuals was carried on during the year with agencies responsible for the operation of these projects. Fiscal year costs were $417,898. Total costs to date have been $7,404,986.

22. ST. MARIES, ID

Location. Project is located on the left bank of the St. Joe River in city of St. Maries, in Benewah County, ID, in the central part of the state.

Existing project. The present earthen levee system and wooden floodwall, 770 feet long, have weakened to the extent that a catastrophic failure can be expected. The proposed project will replace the existing timber floodwall with a driven sheet-pile wall and a concrete cap. Bank protection will be placed 350 feet along the St. Joe River to replace riparian vegetation and to prevent future bank destabilization. Completion is scheduled for early spring of 2004.

Local cooperation. Under current cost sharing requirements, the local sponsor (city of St. Maries) will provide 35 percent of total project cost. A Project Cooperation Agreement (PCA) was signed on April 23, 2003.

Operations during fiscal year. New work, hired labor: Prepared plans and specifications, executed PCA, awarded

contracts for existing timber floodwall demolishment, for construction of the new floodwall, and for bank stabilization.

New work, contract: All construction contracts are under way.

23. STILLAGUAMISH RIVER, WA

Location. Formed by confluence of its north and south forks at Arlington, in northwestern Washington, Stillaguamish River flows westerly 22 miles to Puget Sound, entering Port Susan through Hat Slough and South Pass, and Skagit Bay through West Pass. (See NOAA Survey Chart 18441, and Geological Survey Quadrangles Stanwood, Marysville, and Stillaguamish, WA.)

Existing project. Works to reduce bank erosion and channel changes on Stillaguamish River 15 miles between Arlington and head of Hat Slough, and on Cook Slough, 3 miles long, as follows: revetment at 26 places on river and Cook Slough; concrete weir (including a fishway) 275 feet long between steel sheet-pile piers at head of Cook Slough to limit flow through Slough; and two cutoff channels, each about 900 feet long, to eliminate sharp bends in Cook Slough. Tidal influence extends about 3 miles into improved section. Flood stages of 16 feet above low water at Cook Slough weir have been observed. Project was completed in July 1939. (For further details, see Annual Report for 1940.)

Local cooperation. None required.

Operations during fiscal year. Maintenance, hired labor: Utilized in-house labor to supervise removal of brush from the entire project along slopes of levee.

Maintenance, contract: Repaired 200 feet of bank erosion with equipment rental contracts.

24. TACOMA, PUYALLUP RIVER, WA

Location. Puyallup River has its source in glaciers on western slopes of Mount Rainier, flows northwesterly 50 miles, and empties into Commencement Bay, an arm of Puget Sound, at Tacoma, WA. Work covered by this project is on Puyallup River, within city limits of Tacoma. (See NOAA Survey Chart 18453.)

Existing project. A channel with a capacity of 50,000 cubic feet per second between East 11th Street Bridge and lower end of inter-county improvement, a distance of about 2.2 miles, by straightening channel, building levees, revetting channel and levees, and making necessary bridge changes. The 11th Street Bridge at lower end of project is 0.75 mile above mouth of Puyallup River. Diurnal tidal range at mouth of river is 11.8 feet and extreme range is 20 feet. Project was planned in conjunction with Mud Mountain Dam and affords protection against floods about 50 percent greater than maximum discharge of record. A real estate design memorandum, approved by Office of the Chief of Engineers on October 2, 1985, changed the project boundary to allow the Port of Tacoma to create a wetland adjacent to the project. This action resulted in the Corps acquiring approximately 2,450 linear feet of setback levee in fee simple. Maintenance funds to cover the increased length of the project have been provided by the Port of Tacoma for the project life. Project was completed in May 1950. (For further details, see Annual Report for 1950.)

Local cooperation. Fully complied with.

Operations during fiscal year. Maintenance, hired labor: Utilized in-house labor to supervise removal of brush and noxious weeds from the entire project along slopes of levee. Coordinated annual clean-up with the Puyallup Indian Tribe and disposed of approximately 50 tons of trash.

Maintenance, contract: Awarded equipment rental contracts to achieve removal of brush and noxious weeds.

Flood control activities pursuant to Section 205, Public Law 858, 80th Congress, as amended (preauthorization).

See Table 29-L

Flood control activities pursuant to Section 14, Public Law 526, 79th Congress as amended (preauthorization).

See Table 29-M

Emergency flood control activities - repair, flood fighting, and rescue work (Public Law 99, 84th Congress, and antecedent legislation).

Fiscal year costs were $1,252,598. In addition, $55,059 contributed funds were expended.

Multiple-Purpose Power Projects

25. ALBENI FALLS DAM, ID

Location. On Pend Oreille River about 25 miles west of Sandpoint, in northern Idaho, and 50 miles northeast of Spokane, WA. Dam is 838 and 90 miles upstream from mouths of Columbia and Pend Oreille Rivers, respectively. (See Geological Survey topographic sheets, Sandpoint, ID, and Newport, WA.)

Existing project. Provides flood control, hydroelectric power, and related water uses on Pend Oreille River as a part of the multiple-purpose plan for development of Columbia River Basin, including recreation development. At the dam, the river channel was formerly divided by an island and a low

waterfall of about 7 feet. Dam is a gated, gravity-structure spillway in left channel and a powerhouse having an installation of 42,600 kilowatts in right channel, creating a reservoir with a usable storage capacity of 1,153,000 acre-feet. Project was operational and essentially complete in December 1955, with miscellaneous contracts completing by June 1957. (For further details, see Annual Report for 1957.) Recreational facilities for public use have been provided at Albeni Cove, Priest River, Riley Creek, Johnson Creek, Trestle Creek, Strongs Island, and Springy Point. (Strongs Island was closed in FY 1982 to reduce O&M costs.) (Refer to Albeni Falls Master Plan dated June 1981 for further planned development.)

Local cooperation. None required.

Operations during fiscal year. Maintenance, hired labor: Reservoir was operated through its annual cycle of storage and release. Routine structural, mechanical, and electrical maintenance was performed on spillway, dam, powerhouse, and equipment. New equipment and instrumentation included generator unit synchronizers, flow gauges, net head instruments, kidney loop oil purification, and neutral ground equipment. Significant efforts in response to the USFWS Biological Opinion (December 2000) are continuing using hired labor and contracts.

Maintenance, contract: Contracts completed include project security gate, erosion protection for a cultural resource site (cemetery), and removal of an encroachment on the reservoir. Contracts awarded and continuing include design and installation of new governors, Riley Creek campground modernization, Black Rock erosion control structure, design for Generic Data Acquisition and Control Systems (GDACS), and spillway controls.

Riley Creek RAMP, Idaho

The Riley Creek recreation area at Albeni Falls Dam is 40 acres in size, was built in 1963, and is the largest recreation area within the Seattle District. There are 70 campsites, 47 picnic tables, an amphitheater, a boat ramp, and marked swimming area. The Recreation Area Modernization Program (RAMP) will help managers meet the needs of today's recreation users by improving facility functionality and protecting the natural resources which draw people to the areas.

New work includes renovating campsites, the gate house, restroom/shower houses, boat docks, boat ramp, fishing piers, and picnic shelters; repairing park roads and parking areas; upgrading the sewer system; and providing full access to individuals with disabilities. Construction is scheduled for completion in 2004.

During the current fiscal year, funds were expended for a broad cultural resource survey and awarding a construction contract.

26. CHIEF JOSEPH DAM - RUFUS WOODS LAKE, WA

Location. On Columbia River in north central Washington, at river mile 545, just upstream from mouth of Foster Creek, 1.5 miles upstream from town of Bridgeport. (Geological Survey topographic sheet, Okanogan, WA, shows general locality.)

Existing project. A concrete gravity structure, which consists of a 19-gate spillway and a 27-unit powerhouse. The powerhouse has sixteen 88,274 kilowatt and eleven 95,000 kilowatt generators with nameplate capacity of 2,457,384 kilowatts. The original 16 units were completed in 1962; additional units were completed in 1994. Recreation facilities were completed in 1972.

Local cooperation. None required.

Operations during fiscal year. Maintenance, hired labor: Routine structural, mechanical, and electrical maintenance work was performed on powerhouse, spillway, dam, equipment, and recreation grounds. Prescribed testing for power system reliability improvements continued. Data Acquisition and Control System (DACS) installation continued. Designs were initiated for emergency notification, staging area development, and powerhouse erection bay door replacement. Design continued for supervisory command and control operator console replacement, preferred AC/DC system, turbine runner replacement, crane modernization, and gas abatement. Designs continued for CO2 low pressure fire extinguishing system conversion, physical security enhancements, and biological opinion.

Maintenance, contract: Contracts for warehouse improvements, telephone switch replacement, Willow Flats recreation improvements, and visitor center exhibits were completed. Continuing contracts include powerhouse and intake elevator modernization, penstock flow measurement, station service transformer replacement, and main unit breaker replacement.

27. LIBBY DAM - LAKE KOOCANUSA, MT

Location. On Kootenai River in Lincoln County, MT, about 17 miles upstream from Libby, and 219 miles upstream from confluence of Kootenai and Columbia Rivers. (See Geological Survey topographic sheet, Thompson Lakes, MT.)

Existing project. Provides storage for local flood control protection in Montana and Idaho, and main stem flood control in Lower Columbia River, hydroelectric power generation at site and at downstream plants through storage release. Project is operated as a unit of a comprehensive system for improvement of Columbia River basin for flood control, navigation, hydroelectric power, and other purposes. Lake Koocanusa is 90 miles long, backing water 42 miles into Canada and has a usable storage capacity of 4,965,000 acre-

feet at 50 percent drawdown. Construction of dam was in accordance with a treaty between United States and Canada relating to international cooperation in water resource development of the Columbia River basin. Dam is a straight-axis concrete gravity overflow type, 420 feet high, 3,055 feet long, with normal full pool at elevation 2,459 feet above mean sea level. Powerhouse has an initial installed capacity of 480,000 kilowatts from four hydroelectric generating units; first power went on line in 1975. A fifth generating unit **(Libby Additional Units Project)** was completed in 1984 with an additional capacity of 120,000 kilowatts. Fabrication of generators for units 6 through 8 is completed and parts have been stored at the site. Project is completed with units l through 5 operational. Units 6 through 8 have been reclassified inactive. The **Libby Reregulating Dam Project** provided for construction of a reregulating dam about 10 miles downstream of Libby Dam. Funds were allocated for a construction start in 1977; however, courts have found that Congress did not authorize construction of the dam. In FY 1982, all work was terminated due to court direction. The **Libby Reregulating Dam - Power Units Project** provided for installation of three hydroelectric generating units at the reregulating dam with 78,900 kilowatt installed capacity. (For further details, see Annual Report for 1995).

Local cooperation. Fully complied with.

Operations during fiscal year. Maintenance, hired labor: Reservoir was operated through its annual cycle of storage and release, with concurrent power production. Routine structural, mechanical, and electrical maintenance was performed on spillway, dam, powerhouse and equipment. Electrical service was extended to left-bank maintenance yard buildings. Connections for the new emergency generator were completed. Fish hatchery operation continued under contract with the State of Montana. Significant efforts in response to the USFWS Biological Opinion (December 2000) continue using hired labor and contracts.

Maintenance, contract: Contracts were completed for the following: intake crane modernization, including new controls, refurbishment of hoists and painting; construction of emergency vehicle garage near visitor center; refurbishment of a second station-service transformer; control room soundproofing; and exhibits at Murray Springs Fish Hatchery. Contracts awarded and continuing include design for Generic Data Acquisition and Control Systems (GDACS), design for main unit breaker replacements, and replacement road construction at the hatchery buffer.

Environmental

28. CHERRY CREEK, ID

Location. The project is located in northern Idaho, just west of the city of St. Maries in Benewah County.

Existing project. The project consists of replacing a periodically perched culvert structure and restoring Cherry Creek to a perennially free-running stream. This will allow fish to use the creek for spawning, migration and thermal refuge. Installation of culvert and completion of all project work is scheduled for 2004.

Local cooperation. Under current cost sharing requirements, the local sponsor (Benewah County) will provide 35 percent of project cost. A Project Cooperation Agreement (PCA) was signed on March 18, 2002.

Operations during fiscal year. New work, hired labor: Revisited the design effort and all work pertaining to procurement activities.

New work, contract: Completed culvert procurement.

29. CHIEF JOSEPH DAM DISSOLVED GAS ABATEMENT, WA

Location. On Columbia River in north central Washington, at river mile 545, just upstream from mouth of Foster Creek, 1.5 miles upstream from town of Bridgeport.

Existing project. The ecosystem restoration project would construct flow deflectors in all 19 bays of the spillway at Chief Joseph Dam to abate total dissolved gas levels in the Columbia River downstream of the dam. Scheduled completion date is 2009.

Local cooperation. None required.

Operations during fiscal year. New work, hired labor: Initiated design of flow deflectors and additional hydraulic physical modeling test.

New work, contract: None.

30. CODIGA FARMS, TUKWILA, WA

Location. Project is located in Tukwila, Washington, in King County, approximately 10 miles south of Seattle along the Duwamish River.

Existing project. Restores tidal and riverine hydrology to the site in the form of an off-channel slough, estuarine marsh and riparian buffer. Construction began in August 2003 and is scheduled for completion in the spring of 2004.

Local cooperation. Under current cost sharing requirements, the local sponsor (city of Tukwila and Washington Department of Natural Resources) will provide 25 percent of project restoration, 50 percent of associated recreation, and 100 percent of hazardous waste issues.

A Project Cooperation Agreement (PCA) was signed on December 17, 2002.

Operations during fiscal year. New work, hired labor: Executed PCA, finalized real estate issues, and awarded material and equipment rental contracts.

New work, contract: Work under way by materials delivery and equipment rental.

31. HOWARD A. HANSON DAM, WA

Location. Howard A. Hanson Dam is located on the Green River, in King County, 23 miles up-stream and east of Auburn, and about 35 miles southeast of Seattle in Western Washington State.

Existing project. The project will add ecosystem restoration and municipal and industrial (M&I) water supply to the existing flood control project and will meet Endangered Species Act (ESA) requirements necessitated by the recent listing of the Puget Sound Chinook Salmon. Phase I construction will raise the existing flood control reservoir pool 20 feet (from elevation 1,147 feet to elevation 1,167 feet) to increase storage by 20,000 ac-ft for water supply use. Water will be stored in the spring for M&I use in the summer and fall with no changes to flood control capacity. The additional storage will not require structural changes to the existing dam, but may require right abutment seepage remedies. Phase I will also include construction of a new full height fish passage facility and initiation of miscellaneous ESA and environmental restoration features (reconnection of side channels, gravel nourishment, planting of sedge meadows, and placement of large woody debris at multiple locations). Phase II construction will proceed only with the concurrence of the resource agencies, the sponsor, and the Muckleshoot Tribe. It will consist of raising the pool another 10 feet (to elevation 1,177 feet) to store an additional 2,400 ac-ft of M&I water, plus 9,600 ac-ft of low flow augmentation water, for a combined total of 32,000 additional ac-ft of storage. Scheduled completion date is 2016.

Local cooperation. Under current cost sharing requirements, the local sponsor (city of Tacoma) will provide 27 percent of project cost. A Project Cooperation Agreement (PCA) was signed on July 19, 2003.

Operations during fiscal year. New work, hired labor: Prepared plans and specifications for fish habitat restoration and supervised the contract after award.

New work, contract: Awarded contract for fish habitat restoration. The fish passage design continues.

32. PUGET SOUND AND ADJACENT WATERS, WA

Location. The Puget Sound and adjacent waters region encompasses over 15,000 square miles in northwest Washington State and incorporates all waters in the Puget Sound drainage basin and the Strait of Juan de Fuca

Existing project. This program provides for ecosystem restoration in the Puget Sound area and to expedite construction of critical restoration projects by developing an identification and prioritization process using existing locally provided information, conducting project implementation studies, and constructing specific projects. The program will require approximately 10 years.

Local cooperation. Not required for the program; however, each project implemented under the program authority will be cost shared with the local sponsor providing 35 percent of project cost.

Operations during fiscal year. New work, hired labor: Initiated the program coordination and selection process with local participation. Developed implementation guidance as well as a project cooperative agreement template consistent with WRDA 2000 provisions.

New work, contract: None.

33. RURAL MONTANA, MT (GRANT CREEK AT MISSOULA, MT)

This project is a joint effort of Omaha and Seattle Districts. The first Seattle District project follows:

Location. Grant Creek flows south, adjacent to Highway 93, and crosses Interstate 90 in the northern portion of the city of Missoula, MT.

Existing project. Provide flood damage protection to the Mullan Trail subdivision and other adjacent properties and to restore a degraded system with habitat improvement features.

Local cooperation. Under current cost-sharing requirements, the local sponsor (Missoula County) will provide 25 percent of design cost. A Project Cooperation Agreement (PCA) was signed on June 16, 2003.

Operations during fiscal year. New work, hired labor: Executed PCA and, with a consulting firm, developed a Project Management Plan (PMP).

New work, contract: Developed a PMP with scope of studies for needed engineering and environmental studies to support and provide basis for project features.

34. SWEENEY CREEK, WA

Location. The proposed project is located on Sweeney Creek above Howard Hanson Dam in the Green River watershed, approximately 35 miles southwest of Seattle, WA.

Existing project. Replace two perched culverts with a bridge and regrade the streambed to approximate the natural conditions which existed prior to construction of the road fill and culverts. This will allow current resident fish passage into the upstream reach of the creek for immediate spawning and rearing. This restoration project is an early-action endeavor under the larger Green-Duwamish River ecosystem restoration study. Completion of project work is scheduled for 2004.

Local cooperation. Under current cost sharing requirements, the local sponsor (city of Tacoma) will provide 35 percent of project cost. A Project Cooperation Agreement (PCA) was signed on August 21, 2002.

Operations during fiscal year. New work, hired labor: Awarded and supervised construction contract.

New work, contract: Completed bridge construction.

35. UNION SLOUGH, WA

Location. The proposed project is located on the left bank of Union Slough, Snohomish River, near Everett, WA.

Existing project. The restoration project will restore fish and wildlife habitat which has been adversely affected by the past construction of the Everett Harbor and Snohomish River Navigation Project. It includes the construction of a new 6,800-foot setback levee around the entire 93-acre site, construction of about 2,800 feet of fish access channels to interior locations, filling the borrow ditches behind the abandoned levee, and construction of three breaches and a 180-foot long bridge across each breach. All new construction will be landscaped. Project is one-third complete with final completion in 2005.

Local cooperation. Under current cost sharing requirements, the local sponsor (city of Everett) will provide 25 percent of project cost. A Project Cooperation Agreement (PCA) was signed on May 16, 2003.

Operations during fiscal year. New work, hired labor: Executed PCA, administered contract design work, advertised and awarded construction contract.

New work, contract: Construction of levee was accomplished by rental equipment.

Environmental activities (Section 1135, Public Law 99-662, as amended; Section 206 Public Law 104-303).

See Table 29-N.

General Investigations

36. SURVEYS

Fiscal year costs were $17,981 for navigation studies, $459,093 for flood damage prevention studies, $65,094 for shoreline protection studies, $1,251,207 for special studies, $835,985 for review of authorized projects, $110,970 for miscellaneous activities, and $143,843 for coordination with other agencies and non-Federal interests, a total of $2,884,173. In addition, contributed funds were expended for the following: $5,847 for navigation studies, $85,270 for flood damage prevention studies, $274,340 for review of authorized projects, and $106,652 for coordination with other agencies and non-Federal interests, a total of $472,109.

37. COLLECTION AND STUDY OF BASIC DATA

The work programmed for collection and study of basic data covers international water studies, flood plain management services, and hydrologic studies. Work on international water studies included checking Kootenay Lake storage computations to determine compliance of Aquila Networks Canada with orders of International Joint Commission, and coordination with International Kootenay Lake and Osoyoos Lake Boards of Control in enforcement of International Joint Commission orders. Technical assistance was provided other Federal and non-Federal agencies and Indian tribes in flood hazard evaluation, flood reduction methods, and related services as requested. Fiscal year costs were $22,376 for international water studies, $105,972 for flood plain management services, and $5,610 for hydrologic studies, a total of $133,958.

38. PRECONSTRUCTION ENGINEERING AND DESIGN

Centralia, WA

The city of Centralia lies in west central Washington at the confluence of the Chehalis and Skookumchuck Rivers, about midway along the Chehalis River from its source in the Willapa Hills to its mouth at Aberdeen in Grays Harbor. Floods of record on Skookumchuck, Newaukum, and Chehalis Rivers occurred in February 1996.

The plan of improvement authorized in P.L. 99-662 would substantially reduce flooding in the Skookumchuck River

valley for the 22 miles between Skookumchuck Dam and the river mouth, including a major portion of Centralia, and provide minor reductions along the Chehalis River downstream from Centralia for about 20 miles to Oakville. The improvement, as recommended in the feasibility report, consisted of structural modifications (flood control outlet tunnel and spillway gate) which would enable the existing, private water supply dam to provide flood control storage during winter months.

Preconstruction Engineering and Design (PED) was started in FY 1988 to refine the project design recommended in the feasibility report. In FY 1990, refinement of project design to a less costly, gated spillway sluice and reevaluation of hydrology, existing local levees and embankments, estimated flood damages, and potential flood reduction benefits were completed. Studies determined the Skookumchuck Dam modification no longer appeared economically justifiable and further work was suspended. In FY 1992 a wrap-up report presenting results of the technical analyses completed to date was provided to local governments.

Following the severe flooding in the Centralia-Chehalis area in 1996, there was a renewed public interest in flood damage reduction. Using state and local funding sources, Lewis County reviewed past study efforts and developed a revised flood damage reduction plan that would combine the authorized dam modification with overbank excavation and flow bypass measures. The revised project would provide substantial benefits to both Centralia and Chehalis and appeared to be economically justified. In July 1998, Lewis County requested resumption of PED for the project with a view toward preparing a General Reevaluation Report and Environmental Impact Statement for an expanded project. Work resumed soon thereafter.

Accomplishments during the fiscal year included completion of the final General Reevaluation Report (GRR) and the Environmental Impact Statement (EIS) for the report. This included addressing Corps Headquarters comments on the draft documents and revising the reports. The final EIS and GRR were sent to Corps Headquarters for final review and comments in August 2003. In addition, further work on mitigation design was initiated along with developing statements of work for the design agreement. The final documents will be submitted for consideration for the next WRDA authorization. Fiscal year costs were $601,459. Total costs to date have been $7,684,349.

Duwamish and Green Rivers, WA

The Green River flows out of the Cascade Mountains and enters salt water in Puget Sound at Elliott Bay, Seattle, WA, as the Duwamish River.

The ecosystem restoration project includes 45 sites or programmatic projects throughout the river basin. The projects include everything from culvert replacements in the upper basin to replenishing habitat in Elliott Bay.

Work under Preconstruction Engineering and Design (PED) commenced in FY 2001 with the development of a Draft Design Agreement and Project Management Plan signed in February 2002.

Accomplishments during the fiscal year include initiating detailed design work on 5 sites and coordination with the local sponsor (King County), representatives of 17 cities within the basin, the Muckleshoot Indian Tribe, and local and Federal resource agencies. Fiscal year costs were $349,976. Total costs to date have been $672,692. In addition, $85,750 contributed funds were expended in FY 2003, for a total of $100,827.

Stillaguamish River Basin, WA

Stillaguamish River Basin encompasses the area in northwestern Washington from the reaches of the river's north and south forks westerly to Port Susan and Skagit Bay.

Environmental quality in the basin ecosystem has been significantly impaired by the cumulative effects of industry, urbanization, agriculture, historic forest practices, and hydraulic modifications. The result is noticeable fish and wildlife degradation.

Work under Preconstruction Engineering and Design (PED) commenced in late FY 2001, addressing the recommendations of the feasibility report. This proposes restoration features at ten sites within the basin, which would provide critical salmon habitat, including spawning, rearing, refugia, and estuarine habitats. The project sponsor is Snohomish County, WA.

Accomplishments during the fiscal year include the continuation of discussions for possible PED cooperation with Snohomish County and Stillaguamish Tribe. Fiscal year costs were $5,919. Total costs to date have been $16,538.

Other Activities

39. CATASTROPHIC DISASTER PREPAREDNESS PROGRAM

Fiscal year costs were $18,693, provided for activities required for local and national preparedness.

40. OTHER PROGRAMS AND ACTIVITIES

Fiscal year costs were $87,248, provided for anti-terrorism and force protection.

41. GENERAL REGULATORY FUNCTIONS PROGRAM

Permit Evaluation	$3,688,663
Enforcement	417,372
Appeals	5,245
TOTAL	$4,111,280

TABLE 29-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total To Sep. 30, 2003	
1.	Anacortes Harbor, WA	New Work						
	(Federal Funds)	Approp.					222,345	
		Cost					222,345	1
		Maint.						
		Approp.				36,337	1,243,820	
		Cost				36,337	1,243,820	
	(Contrib. Funds)	New Work						
		Contrib.					59,524	
		Cost					59,524	
		Maint.						
		Contrib.					5,000	
		Cost					5,000	
2.	Bellingham Harbor, WA	New Work						
	(Federal Funds)	Approp.	_	_	_	_	1,566,839	
		Cost	_	_	_	_	1,566,839	2
		Maint.						
		Approp.	99,293	105,001	3,168	36,953	3,334,670	
		Cost	99,293	105,001	3,168	36,953	3,334,670	3
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	29,421	
		Cost	_	_	_	_	29,421	
		Maint.						
		Contrib.	_	_	_	_	9,103	
		Cost	_	_	_	_	9,103	
3.	Ediz Hook, WA	New Work						
	(Federal Funds)	Approp.	_	_	_	_	5,878,740	
		Cost	_	_	_	_	5,878,740	
		Maint.						
		Approp.	_	_	197,038	400,688	2,683,564	
		Cost	_	_	196,621	401,106	2,683,564	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	385,850	
		Cost	_	_	_	_	385,850	
		Maint.						
		Contrib.	_	_	_	52,702	304,015	
		Cost	_	_	_	54,976	284,477	
4.	Everett Harbor and	New Work						
	Snohomish River, WA	Approp.	_	_	_	_	1,723,745	
	(Federal Funds)	Cost	_	_	_	_	1,723,745	4
		Maint.						
		Approp.	607,486	1,052,003	1,322,374	291,993	21,208,349	
		Cost	608,903	1,052,043	1,320,412	252,063	21,166,457	5

TABLE 29-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total To Sep. 30, 2003	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	116,618	
		Cost	_	_	_	_	116,618	
		Maint.						
		Contrib.	_	_	_	_	548,090	
		Cost	_	_	_	_	548,090	
5.	Friday Harbor, WA	New Work						
	(Federal Funds)	Approp.	_	_	_	_	1,575,500	
		Cost	_	_	_	_	1,575,500	6
		Maint.						
		Approp.	335,098	4,513	283,748	-1,555	795,840	
		Cost	335,098	4,513	277,484	2,842	793,974	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	1,267,881	
		Cost	_	_	_	_	1,267,881	
6.	Grays Harbor and	New Work						
	Chehalis River, WA	Approp.	-79,105	-25,000	-27,000	20,000	23,248,248	7
	(Federal Funds)	Cost	310,710	29,941	12,999	18,835	23,239,391	8
		Maint.						
		Approp.	20,623,703	13,110,237	12,099,975	10,620,264	210,188,690	
		Cost	20,637,890	11,578,561	13,543,268	10,661,075	210,127,630	9
		Minor Rehab.						
		Approp.	_	_	_	_	9,592	
		Cost	_	_	_	_	9,592	10
		Major Rehab.						
		Approp.	_	_	_	_	4,606,145	
		Cost	_	_	_	_	4,606,145	
	(Contrib. Funds)	New Work						
		Contrib.	100,000	_	_	12,000	6,408,000	
		Cost	89,335	9,173	4,544	12,993	6,396,469	11
		Maint.						
		Contrib.	_	_	_	_	55,889	
		Cost	_	_	_	_	55,889	
7.	Lake Crockett, WA	New Work						
		Approp.	_	_	_	_	377,990	
		Cost	_	_	_	_	377,990	12
		Maint.						
		Approp.	_	8,592	_	6,762	1,194,629	
		Cost	_	8,592	_	6,762	1,194,629	
8.	Lake Washington	New Work						
	Ship Canal, WA	Approp.	_	_	_	_	4,611,436	
	(Federal Funds)	Cost	_	_	_	_	4,611,436	13
		Maint.						
		Approp.	7,242,000	7,252,517	9,072,273	7,524,270	166,052,406	
		Cost	7,317,690	7,234,106	7,914,414	8,415,325	165,728,383	14

TABLE 29-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total To Sep. 30, 2003	
		Major Rehab.						
		Approp.	_	_	_	_	7,465,230	
		Cost	_	_	_	_	7,465,230	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	250,000	
		Cost	_	_	_	_	250,000	15
		Maint.						
		Contrib.	_	_	_	_	40,000	
		Cost	_	_	_	_	39,964	
9.	Neah Bay, WA	New Work						
		Approp.	_	_	_	_	2,057,266	
		Cost	_	_	_	_	2,057,266	
		Maint.						
		Approp.	_	57,554	1,202,395	629,833	3,972,839	
		Cost	_	57,554	1,197,938	634,289	3,972,839	
11.	Puget Sound and its Tributary Waters, WA	New Work						
		Approp.	_	_	_	_	43,337	
		Cost	_	_	_	_	43,337	
		Maint.						
		Approp.	627,364	1,004,721	809,055	1,021,498	29,775,739	
		Cost	628,750	1,004,886	807,455	1,020,318	29,772,959	16
12.	Quillayute River, WA	New Work						
	(Federal Funds)	Approp.	_	_	_	_	521,850	
		Cost	_	_	_	_	521,850	17
		Maint.						
		Approp.	803,917	249,352	1,701,452	988,499	29,343,315	
		Cost	840,772	250,903	1,618,960	1,070,543	29,342,865	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	20,000	
		Cost	_	_	_	_	20,000	
13.	Seattle Harbor, WA	New Work						
	(Federal Funds)	Approp.	_	_	_	_	170,335	
		Cost	_	_	_	_	170,335	
		Maint.						
		Approp.	3,254,349	368,158	575,309	224,699	18,676,980	
		Cost	3,305,056	368,319	574,869	222,718	18,674,559	18
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	69,333	
		Cost	_	_	_	_	69,333	
		Maint.						
		Contrib.	2,262,975	_	_	_	2,357,450	19
		Cost	2,038,749	149,786	1	_	2,283,011	20
14.	Swinomish Channel, WA	New Work						
	(Federal Funds)	Approp.	_	_	_	_	808,332	
		Cost	_	_	_	_	808,332	21
		Maint.						
		Approp.	250,630	44,180	223,975	144,451	9,290,318	
		Cost	249,796	46,515	223,779	128,622	9,274,292	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	32,000	
		Cost	_	_	_	_	32,000	
		Maint.						
		Contrib.	_	_	_	_	379,248	
		Cost	_	_	_	_	379,248	

TABLE 29-A COST AND FINANCIAL STATEMENT
(Continued)

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total To Sep. 30, 2003	
15.	Willapa River and Harbor	New Work						
	and Naselle River, WA	Approp.	_	_	_	_	1,386,955	
	(Federal Funds)	Cost	_	_	_	_	1,386,955	22
		Maint.						
		Approp.	2,051,158	1,598,839	1,246,498	134,208	24,319,617	
		Cost	2,050,231	1,600,101	1,246,498	134,208	24,319,617	23
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	78,372	
		Cost	_	_	_	_	78,372	24
16.	Shoalwater Bay, Tokeland, WA	New Work						
		Approp.	_	_	500,000	571,000	1,071,000	
		Cost	_	_	495,294	555,748	1,051,041	
17.	Coeur d'Alene River	New Work						
	(South Fork), Wallace, ID	Approp.	_	80,000	29,000	448,000	619,883	
	(Federal Funds)	Cost	_	62,866	43,329	418,932	588,010	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	374,250	374,250	
		Cost	_	_	_	24,081	24,081	
18.	Howard A. Hanson Dam, WA	New Work						
	(Federal Funds)	Approp.	_	_	_	_	38,311,834	
		Cost	_	_	_	_	38,311,834	25
		Maint.						
		Approp.	1,657,000	1,916,324	1,495,310	1,684,100	28,647,553	
		Cost	1,669,894	1,910,735	1,405,627	1,774,332	28,634,977	26
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	2,009,742	
		Cost	_	_	_	_	2,009,742	27
20.	Mud Mountain Dam, WA	New Work						
	(Federal Funds)	Approp.	4,400,000	3,189,000	1,749,000	2,129,000	96,605,075	28
		Cost	4,794,889	3,814,127	2,071,807	2,160,567	96,566,055	29
		Maint.						
		Approp.	2,862,000	2,773,453	2,533,200	2,035,000	48,135,643	
		Cost	2,854,976	2,777,432	2,491,190	2,075,889	48,113,394	30
		Minor Rehab.						
		Approp.	_	_	_	_	285,908	
		Cost	_	_	_	_	285,908	
		Major Rehab.						
		Approp.	_	_	_	_	30,437,500	
		Cost	_	_	_	_	30,437,500	
	(Contrib. Funds)	Maint.						
		Contrib.	_	_	_	_	3,928	
		Cost	_	_	_	_	3,928	
22.	St. Maries, ID	New Work						
	(Federal Funds)	Approp.	30,000	140,000	93,683	480,000	783,683	
		Cost	52,061	118,971	113,078	472,611	773,659	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	454,000	454,000	
		Cost	_	_	_	72,432	72,432	
23.	Stillaguamish River, WA	New Work						
	(Federal Funds)	Approp.	_	_	_	_	134,595	
		Cost	_	_	_	_	134,595	31
		Maint.						
		Approp.	165,108	174,559	230,000	235,000	4,460,190	
		Cost	164,776	174,851	229,661	235,427	4,460,066	

TABLE 29-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total To Sep. 30, 2003	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	21,000	
		Cost	_	_	_	_	21,000	
24.	Tacoma, Puyallup River, WA	New Work						
	(Federal Funds)	Approp.	_	_	_	_	3,947,853	
		Cost	_	_	_	_	3,947,853	32
		Maint.						
		Approp.	42,585	56,832	120,436	121,000	1,534,221	
		Cost	42,514	56,029	115,652	121,087	1,528,501	
	(Contrib. Funds)	Maint.						
		Contrib.	_	_	_	_	54,405	
		Cost	4,534	-64	_	1,792	50,978	
25.	Albeni Falls Dam, ID	New Work						
		Approp.	_	_	_	370,000	32,111,561	33
		Cost	_	_	_	207,799	31,949,360	34
		Maint.						
		Approp.	6,522,770	7,215,073	6,050,897	6,630,413	110,669,871	35
		Cost	6,767,724	7,094,762	5,411,331	5,768,664	108,594,565	36
26.	Chief Joseph Dam-	New Work						
	Rufus Woods Lake, WA	Approp.	_	_	_	_	540,341,235	
		Cost	231	_	11	_	540,341,235	37
		Maint.						
		Approp.	20,548,412	19,576,598	21,438,152	25,076,894	299,788,462	38
		Cost	17,164,718	21,734,066	16,997,848	21,882,516	289,453,260	39
		Major Rehab.						
		Approp.	_	_	_	_	297,630	
		Cost	_	_	_	_	297,630	
27.	Libby Dam - Lake	New Work						
	Koocanusa, MT	Approp.	_	_	_	_	543,726,140	
	(Federal Funds)	Cost	_	_	_	_	543,726,140	40
		Maint.						
		Approp.	8,072,488	9,545,112	9,825,948	8,642,092	133,494,792	41
		Cost	7,196,483	9,452,194	9,354,742	7,785,180	130,890,892	42
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	_	1,458,252	
		Cost	_	_	_	_	1,458,252	43
28.	Cherry Creek, ID	New Work						
	(Federal Funds)	Approp.	_	40,000	70,000	-4,000	106,000	
		Cost	_	30,206	66,883	5,128	102,217	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	6,000	_	6,000	
		Cost	_	_	_	4,180	4,180	
29.	Chief Joseph Dam Dissolved	New Work						
	Gas Abatement, WA	Approp.	_	_	_	368,000	368,000	
		Cost	_	_	_	364,733	364,733	
30.	Codiga Farms, Tukwila, WA	New Work						
	(Federal Funds)	Approp.	_	158,000	_	873,000	1,031,000	
		Cost	_	122,160	32,295	841,678	996,133	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	11,900	11,900	
		Cost	_	_	_	7,667	7,667	

TABLE 29-A COST AND FINANCIAL STATEMENT
(Continued)

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total To Sep. 30, 2003	
31.	Howard A. Hanson Dam, WA	New Work						
	(Sec. 101(b)(15))	Approp.	1,755,000	2,922,000	5,436,572	5,106,000	16,153,572	44
	(Federal Funds)	Cost	1,735,274	2,306,907	6,033,033	4,845,155	15,780,129	45
	(Contrib. Funds)	New Work						
		Contrib.	1,000,000	760,000	2,050,000	2,000,000	6,060,000	46
		Cost	793,063	768,500	1,964,127	575,951	4,102,265	47
32.	Puget Sound and Adjacent	New Work						
	Waters, WA	Approp.	_	_	_	93,000	93,000	
		Cost	_	_	_	72,105	72,105	
33.	Rural Montana Program, MT	New Work						
	(Grant Creek at Missoula, MT)	Approp.	_	_	_	100,000	100,000	
		Cost	_	_	_	56,873	56,873	
34.	Sweeney Creek, WA	New Work						
	(Federal Funds)	Approp.	_	92,000	45,000	171,000	308,000	
		Cost	_	80,705	21,583	192,946	295,234	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	70,000	69,800	139,800	
		Cost	_	_	_	103,037	103,037	
35.	Union Slough, WA	New Work						
	(Federal Funds)	Approp.	90,000	210,000	15,000	277,000	642,000	
		Cost	80,535	222,695	28,354	261,905	624,894	
	(Contrib. Funds)	New Work						
		Contrib.	_	_	_	187,150	187,150	
		Cost	_	_	_	150,943	150,943	

1. Excludes $2,000 Coast Guard funds expended.
2. Includes $56,582 appropriated and expended for previous project. Excludes $13,000 Coast Guard funds expended.
3. Includes $1,092 appropriated and expended for previous project.
4. Includes $418,209 appropriated and expended for previous projects. Excludes $43,000 Coast Guard funds expended.
5. Includes $5,869 for previous project and $120,000 for Maintenance and Operation of Dams and Other Improvements of Navigable Waters, appropriated and expended.
6. Includes $1,180,500 expended under Productive Employment Appropriation Act of 1983 (P.L.98-8).
7. Includes $4,881,882 appropriated for former project, $18,128,287 for current project which includes $3,530,000 PED, $124,945 for recreation facilities at completed project (Code 710), and $113,134 for previous project. Excludes $161,909 Navy funds and $6,000 Coast Guard funds.
8. Includes $4,881,882 expended for former project, $18,119,430 for current project which includes $3,530,000 PED, $124,945 for recreation facilities at completed project (Code 710), and $113,134 for previous project. Excludes $161,909 Navy funds and $6,000 Coast Guard funds.
9. Includes $37,415 for previous projects and $3,923,511 for Maintenance and Operation of Dams and Other Improvements of Navigable Waters, appropriated and expended. Excludes $409,660 Emergency Relief funds and $57,000 Public Works Administration funds expended.
10. Excludes $111,000 Public Works Acceleration Act funds expended.
11. Excludes $3,418,000 contributed by Port of Grays Harbor in fulfilling requirements of local cooperation.
12. Includes $117,750 appropriated and expended for recreation facilities at completed project (Code 710).
13. Includes $779,655 for recreation facilities at completed project (Code 710) and $485,002 for previous projects, appropriated and expended. Excludes $246,567 expended by State of Washington and $742,071 expended by King County. Excludes $192,516 Public Works Administration funds expended.
14. Includes $1,631,195 (1916 to 1936) and $338,163 subsequently appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters.
15. Previous project.
16. Includes $64,996 appropriated and expended for previous project.
17. Excludes Navy funds expended on dredging river channel in 1944 and Coast Guard funds expended for channel dredging in 1948 and 1949.
18. Includes $3,349,600 appropriated and expended for East Waterway.
19. Includes $2,262,975 contributed for East Waterway.
20. Includes $2,188,536 expended for East Waterway.
21. Excludes $1,000 Coast Guard funds expended.
22. Includes $228,084 appropriated and expended for previous projects. Excludes $40,000 Coast Guard funds and $192,314 Emergency Relief funds expended.
23. Includes $309,177 appropriated and expended for previous projects. Excludes $78,532 Public Works Administration funds expended.
24. Includes $6,597 expended for previous projects.
25. Includes $37,048,061 appropriated and expended for original project and $1,263,773 appropriated and expended for Dam Safety Assurance.
26. Includes $66,678 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters.

TABLE 29-A COST AND FINANCIAL STATEMENT
(Continued)

27. Includes $2,000,000 contributed for original project and $9,742 for Dam Safety Assurance.
28. Includes $13,182,063 appropriated for original project, $87,785 appropriated for recreation facilities at completed project (Code 710) and $83,335,227 appropriated for Dam Safety Assurance. Excludes $26,000 Emergency Relief funds.
29. Includes $13,182,063 expended for original project, $87,785 expended for recreation facilities at completed project (Code 710) and $83,296,207 expended for Dam Safety Assurance. Excludes $26,000 Emergency Relief funds expended.
30. Includes $198,578 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters.
31. Excludes $281,000 Works Progress Administration funds and $85,999 Emergency Relief funds expended.
32. Includes $5,035 appropriated and expended for recreation facilities at completed project (Code 710).
33. Includes $370,000 appropriated for current project (Riley Creek Recreation Area), $30,769,614 for original project, and $971,947 for recreation facilities at completed project (Code 710). Excludes $136,736 Public Works Acceleration Act funds for recreation facilities at completed project (Code 710).
34. Includes $207,799 expended for current project (Riley Creek Recreation Area), $30,769,614 for original project, and $971,947 for recreation facilities at completed project (Code 710). Excludes $136,736 Public Works Acceleration Act funds expended for recreation facilities at completed project (Code 710).
35. Includes funds appropriated for project O&M ($85,922,261), Special Recreation Use Fees ($174,776), Maintenance and Operation of Dams and Other Improvements of Navigable Waters ($1,875,446), BPA/COE Merged, CAT 390 ($20,064,224) and BPA-4045 Large Capital Subagreements, CAT 300 ($2,633,164).
36. Includes funds expended for project O&M ($85,896,005), Special Recreation Use Fees ($174,776), Maintenance and Operation of Dams and Other Improvements of Navigable Waters ($1,875,446), BPA/COE Merged, CAT 390 ($18,485,286) and BPA-4045 Large Capital Subagreements, CAT 300 ($2,163,052).
37. Includes $144,338,252 appropriated and expended for original project, $395,855,000 for additional units, and $147,983 for recreation facilities at completed project (Code 710). Excludes $58,000 Public Works Acceleration Act funds for recreation facilities at completed project (Code 710).
38. Includes funds appropriated for project O&M ($203,476,357), Maintenance and Operation of Dams and Other Improvements of Navigable Waters ($774,561), BPA/COE Merged, CAT 390 ($73,117,551), and BPA-4045 Large Capital Subagreements, CAT 300 ($22,419,992).
39. Includes funds expended for project O&M ($200,320,554), Maintenance and Operation of Dams and Other Improvements of Navigable Waters ($774,561), BPA/COE Merged, CAT 390 ($70,508,655), and BPA-4045 Large Capital Subagreements, CAT 300 ($17,849,490).
40. Includes $484,753,143 appropriated and expended for original project, $42,221,634 for additional units, $16,276,363 for reregulating dam, and $475,000 for power planning.
41. Includes funds appropriated for project O&M ($93,484,278), Maintenance and Operation of Dams and Other Improvements of Navigable Waters ($774,561), BPA/COE Merged, CAT 390 ($35,962,264), and BPA-4045 Large Capital Subagreements, CAT 300 ($3,273,690).
42. Includes funds expended for project O&M ($93,154,571), Maintenance and Operation of Dams and Other Improvements of Navigable Waters ($774,561), BPA/COE Merged, CAT 390 ($33,981,169), and BPA-4045 Large Capital Subagreements, CAT 300 ($2,980,592).
43. Excludes $161,849 expended by Federal Aviation Agency, $32,000 expended by Lincoln County- City of Libby Joint Airport Board, $8,000 expended by Bonneville Power Administration, and $379,555 expended by U.S. Forest Service.
44. Includes $5,735,572 appropriated under Preconstruction Engineering and Design.
45. Includes $5,733,801 expended under Preconstruction Engineering and Design.
46. Includes $2,010,000 contributed under Preconstruction Engineering and Design.
47. Includes $1,835,774 expended under Preconstruction Engineering and Design.

TABLE 29-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
1.		**ANACORTES HARBOR, WA**	
	March 2, 1919	Channel in Capsante Waterway.	H. Doc. 1117, 64th Cong., 1st Sess.
	Sep. 3, 1954	Mooring Basin.	S. Doc. 102, 83rd Cong., 2d Sess.
	July 14, 1960 as amended	Navigation Channel.	Sec. 107, P.L. 86-645 Authorized by Chief of Engineers Dec. 31, 1974
2.		**BELLINGHAM HARBOR, WA**	
	June 25, 1910	Whatcom Creek Waterway 26- and 18-foot channels.	H. Doc. 1161, 60th Cong., 2d Sess.
	July 3, 1930	Entrance channel in Squalicum Creek Waterway.	H. Doc. 187, 70th Cong., 1st Sess.
	Aug. 26, 1937	Maintenance of southerly half and westerly end of Squalicum Creek Basin.	Rivers and Harbors Committee Doc. 70, 74th Cong., 1st Sess.
	Sep. 3, 1954	Small-boat basin adjacent to Squalicum Creek Waterway.	H. Doc. 558, 82d Cong., 2d Sess.
	July 14, 1960 as amended	Expansion of small-boat basin.	Sec. 107, P.L. 86-645 Authorized by Chief of Engineers Feb 10, 1976.
	July 3, 1958	Whatcom Creek Waterway, 30-foot channel.	S. Doc. 46, 85th Cong., 1st Sess.
	July 14, 1960 as amended	Channel 3,200 feet long, 100 feet wide, and 18 feet deep in I&J Street Waterway.	Sec. 107, P.L. 86-645 Authorized by Chief of Engineers May 5, 1965.
3.		**EDIZ HOOK, WA**	
	Mar. 7, 1974	Construction of 10,000 linear feet of rock revetment, together with initial beach replenishment and annual nourishment. Emergency interim measures necessary to prevent breaching of Ediz Hook prior to construction of authorized project.	H. Doc. 101, 93d cong., 1st Sess. P.L. 93-251
4.		**EVERETT HARBOR AND SNOHOMISH RIVER, WA**	
	June 25, 1910	Training dike 10,500 feet long extending across bar at outlet of old river channel.	H. Doc. 1108, 60th Cong., 2d Sess.
	July 3, 1930	Raise 6,000 feet of training dike, extend spur dike, widen gap in dike as required, maintain East Waterway and channel to gap.	H. Doc. 377, 71st Cong., 2d Sess.
	June 20, 1938	Abandon project for Snohomish River and redesignate as Everett Harbor and Snohomish River. Provide settling basin near 14th Street.	H. Doc. 546, 75th Cong., 3d Sess.
	Sep. 3, 1954	Construct spur dike at Preston Point, remove training dike north of river outlet, enlarge channel to 14th Street, and deepen settling basin.	H. Doc. 569, 81st Cong., 2d Sess.
	July 14, 1960	Widen channel from settling basin to gap; extend channel to head of Steamboat Slough; and a settling basin within upper channel reach.	H. Doc. 348, 86th Cong., 2d Sess.
5.		**FRIDAY HARBOR, WA**	
	July 14, 1960 as amended	Construction of 1,600 feet of concrete floating breakwater.	Sec. 107, P.L. 86-645 Authorized by Chief of Engineers July 9, 1981
6.		**GRAYS HARBOR AND CHEHALIS RIVER, WA**	
	June 3, 1896	South jetty.	Annual Report, 1895, pp. 3517-3533
	Mar. 2, 1907	A north jetty 9,000 feet long.	Rivers and Harbors Committee Doc. 2, 59th Cong., 2d Sess.
	Mar. 2, 1907	The 18-foot channel.	H. Doc. 507, 59th Cong., 1st Sess.
	June 25, 1910	Extend north jetty 7,000 feet; length of south jetty fixed at 13,734 feet	Rivers and Harbors Committee Doc. 29, 61st Cong., 2d Sess.
	June 25, 1910	A 6-foot channel above Cosmopolis.	H. Doc. 1125, 60th Cong., 2d Sess.
	Aug. 8, 1917	Dredging in bar channel.	H. Doc. 1729, 64th Cong., 2d Sess.
	Jan. 21, 1927	Dredging in bar channel.	H. Doc. 582, 69th Cong., 2d Sess.
	Aug. 30, 1935	Reconstruct north and south jetties to an elevation of 16 feet above mean lower low water.	Rivers and Harbors Committee Doc. 2, 74th Cong., 1st Sess.
	Aug. 30, 1935	Maintain 26-foot channel below Aberdeen (as authorized by Public Works Administration Dec. 11, 1933) and combining projects for Grays Harbor and bar entrance and Grays Harbor, inner portion, and Chehalis River under a modified project for Grays Harbor and Chehalis River.	H. Doc. 53, 73rd Cong., 1st Sess. Rivers and Harbors Committee Doc. 2, 74th Cong., 1st Sess.

TABLE 29-B AUTHORIZING LEGISLATION
(Continued)

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	P.L. 78-534
	Mar. 2, 1945	Maintain 30-foot depth in channel from deep water in Grays Harbor to Port of Grays Harbor Commission terminal which was deepened from 26 to 30 feet with Navy funds.	Report in Office, Chief of Engineers
	June 30, 1948	14-foot channel to Bay City; breakwater at Westhaven; and maintenance of Westhaven entrance channel.	H. Doc. 635, 80th Cong., 2d Sess.
	Sep. 3, 1954	Dredging and maintenance of a 30-foot channel and turning basin from Aberdeen to Cosmopolis.	H. Doc. 412, 83d Cong., 2d Sess.
	Sep. 3, 1954	Additional breakwater, 1,400 feet long, at Westhaven Cove.	H.Doc. 30, 84th Cong., 1st Sess.
	July 14, 1960 as amended	Westhaven Cove small boat basin.	Sec. 107, P.L. 86-645. Authorized by Chief of Engineers Feb. 7, 1979
	Nov. 17, 1986	Improve project features with accompanying fish mitigation.	P.L. 99-662
7.		**LAKE CROCKETT, WA**	
	Mar. 2, 1945	Small-boat basin.	H. Doc. 303, 77th Cong., 1st Sess.
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	P.L. 78-534
	July 14, 1960 as amended	Change authorized channel depth from –18 mean lower low water to –25 mean lower low water by dredging.	Sec. 197, P.L. 86-645 Authorized by Chief of Engineers Nov. 7, 1988
8.		**LAKE WASHINGTON SHIP CANAL, WA**	
	June 25, 1910 Mar. 4, 1913	Provides for a double lock and fixed dam with gated spillway and necessary accessory works at entrance to Salmon Bay, dredging a channel from locks to deep water in Puget Sound, and excavation by local interests of a channel from locks into Lake Washington.	H. Doc. 953, 60th Cong., 1st Sess.
	Aug. 8, 1917	Dredging below locks and revetting canal banks.	H. Doc. 800, 64th Cong., 1st Sess.
	Sep. 22, 1922	Increased dimensions of channel between Puget Sound and locks and a 600-foot extension of lower guide pier.	H. Doc. 324, 67th Cong., 2d Sess.
	June 26, 1934 1	Operating and care of locks and dam provided for with funds from War Department appropriations for Rivers and Harbors.	
	Aug. 30, 1935 2	Enlarge channel between locks and Lake Washington.	H. Doc. 140, 72d Cong., 1st Sess.
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	P.L. 78-534
	July 24, 1956	Government Locks to be known as Hiram M. Chittenden Locks.	P.L. 84-779
9.		**NEAH BAY, WA**	
	June 20, 1938	Rubblestone breakwater.	Rivers and Harbors Committee Doc. 51, 75th Cong., 2d Sess.
	Sep. 3, 1954	Reinforcement of existing revetment.	H. Doc. 404, 83d Cong., 2d Sess.
11.		**PUGET SOUND AND ITS TRIBUTARY WATERS, WA**	
	July 13, 1892	Maintenance of the rivers tributary to Puget Sound by snagging and dredging, and removal of floating debris from Seattle Harbor.	Annual Report for 1893, page 3425
12.		**QUILLAYUTE RIVER, WA**	
	July 3, 1930	Jetty (5 feet high) on easterly side of mouth, and a dike on westerly side, to stabilize entrance.	H. Doc. 125, 71st Cong., 1st Sess.
	Mar. 2, 1945	Maintenance dredging to provide a channel 6 feet deep and of suitable width from ocean to within river mouth.	H. Doc. 218, 78th Cong., 1st Sess.
	Sep. 3, 1954	Raising jetty to 15 feet; channel 10 by 100 feet, 2,000 feet long; moorage basin. 3	H. Doc. 579, 81st Cong., 2d Sess.

TABLE 29-B AUTHORIZING LEGISLATION
(Continued)

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
13.		**SEATTLE HARBOR, WA**	
	Mar. 2, 1919	Maintenance of East and West Waterways 750 feet wide and 34 feet deep, and of Duwamish Waterway 20 feet deep and 150 feet wide as far south as Eighth Avenue South Bridge.	S. Doc. 313, 65th Cong., 3d Sess.
	Mar. 3, 1925	Enlargement of Duwamish Waterway.	H. Doc. 108, 68th Cong., 1st Sess.
	July 3, 1930		H. Doc. 126, 71st Cong., 2d Sess.
	Aug. 30, 1935	Maintenance of East Waterway between 750-foot section and Spokane Street, and turning basin at junction of East and Duwamish Waterways.	H. Doc. 211, 72d Cong., 1st Sess.
	Oct. 12, 1996	East Waterway channel deepening.	P.L. 104-303
14.		**SWINOMISH CHANNEL, WA**	
	July 13, 1892	Channel 4 feet deep and 100 feet wide, and dike construction.	H. Doc. 31, 52d Cong., 1st Sess., and Annual Report for 1892, p. 2752
	Aug. 30, 1935	Enlargement of channel to present project dimensions.	S. Committee Print, 73d Cong., 1st Sess.
	Oct. 23, 1962	Removal of navigation hazards at "Hole-in-the-Wall".	H. Doc. 499, 87th Cong., 2d Sess.
15.		**WILLAPA RIVER AND HARBOR AND NASELLE RIVER, WA**	
	July 27, 1916	Channel 24 feet deep, 200 feet wide in Willapa River, and 150 feet wide in the forks.	H. Doc. 706, 63d Cong., 2d Sess.
	Aug. 30, 1935 2	Maintenance of channel over bar to a depth of 26 feet and minimum width of 500 feet.	Rivers and Harbors Committee Doc. 41, 72d Cong., 1st Sess.
	Aug. 30, 1935 4	For cutoff channel at Narrows.	Rivers and Harbors Committee Doc. 37, 73d Cong., 2d Sess.
	Mar. 2, 1945	Channel from deep water in Palix River to Bay Center dock.	H. Doc. 481, 76th Cong., 2d Sess.
	Sep. 3, 1954	Widen Willapa River channel to 360 and 250 feet between South Bend and the forks; Tokeland and Nahcotta basins; and Naselle River clearance. Willapa River and Harbor re-designated as Willapa River and Harbor and Naselle River.	H. Doc. 425, 83d Cong., 2d Sess.
16.		**SHOALWATER BAY, TOKELAND, WA**	
	Dec. 11, 2000	Coastal erosion reduction.	Sec. 545, WRDA 2000 P.L. 106-541
17.		**COEUR D'ALENE RIVER (SOUTH FORK), WALLACE, ID**	
	Jul. 24, 1946	Replace approximately 700 feet of retaining wall.	Sec. 14, P.L. 79-526 Authorized by Chief of Engineers May 8, 2003
18.		**HOWARD A. HANSON DAM, WA**	
	May 17, 1950	Eagle Gorge flood control dam on Green River.	H. Doc. 271, 81st Cong., 1st Sess.
	Aug. 6, 1958	Redesignation of project as Howard A. Hanson Dam.	P.L. 85-592
20.		**MUD MOUNTAIN DAM, WA**	
	June 22, 1936	Flood control dam on White River.	S. Committee Print, Puyallup River, WA, 74th Cong., 2d Sess.
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	P.L. 78-534

TABLE 29-B AUTHORIZING LEGISLATION
(Continued)

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
22.		**ST. MARIES, ID**	
	June 30, 1948 as amended	Replace existing timber floodwall with a driven sheet-pile wall with a concrete cap.	Sec. 205, P.L. 80-858 Authorized by Chief of Engineers July 14, 2003
23.		**STILLAGUAMISH RIVER, WA**	
	June 22, 1936	Improvement of flood channel by clearing and bank revetment at 26 sites; concrete weir at head of Cook Slough; and 2 cutoff channels in Cook Slough.	H. Doc. 657, 71st Cong., 3d Sess.
	June 28, 1938	Maintenance of improvements.	P.L. 75-761
24.		**TACOMA, PUYALLUP RIVER, WA**	
	June 22, 1936	Channel improvement to protect people and industrial section of city of Tacoma.	S. Committee Print, Puyallup River, WA, 74th Cong., 2d Sess.
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	P.L. 78-534
25.		**ALBENI FALLS DAM, ID**	
	May 17, 1950	Multi-purpose dam with powerhouse.	S. Doc. 9, 81st Cong., 1st Sess.
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	P.L. 78-534
	Dec. 22, 1944 as amended	Modernize recreation area at Riley Creek.	P.L. 78-534
26.		**CHIEF JOSEPH DAM - RUFUS WOODS LAKE, WA**	
	July 24, 1946	Multi-purpose dam and powerhouse on Columbia River at Foster Creek.	H. Doc. 693, 79th Cong., 2d Sess.
	June 30, 1948	Redesignation of the project as Chief Joseph Dam.	P.L. 858, 80th Cong., 2d Sess.
	July 9, 1952	Designation of reservoir as Rufus Woods Lake.	P.L. 469, 82d Cong., 2d Sess.
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	P.L. 78-534
	Oct. 22, 1976 as amended	School facilities for education of dependents of construction personnel.	P.L. 94-587
	May 4, 1977		P.L. 95-26
27.		**LIBBY DAM - LAKE KOOCANUSA, MT**	
	May 17, 1950	Multi-purpose dam and powerhouse, and reregulating facilities.	H. Doc. 531, 81st Cong., 2d Sess.
	Nov. 7, 1966	School facilities for education of dependents of construction personnel, Libby project.	P.L. 89-789
	Jan. 2, 1968	Airport facility at Kelley Flats, MT.	P.L. 90-239 5
	Aug. 13, 1968	Design standards for relocation of Montana State Highway 37 to be those adopted by State of Montana pursuant to provisions of Highway Safety Act of 1966.	P.L. 90-483 6
	June 19, 1970	Participation with State of Montana in construction, operation and maintenance of fish hatchery facilities.	P.L. 91-282 7
	Dec. 31, 1970	Designation of lake formed by the waters impounded by Libby Dam as Lake Koocanusa.	P.L. 91-625
	Dec. 31, 1970	Design and construction of sewage collection and sewage treatment facility as part of relocation of municipal facilities of Rexford, MT; and compensation for railroad employees suffering long-term economic injury through reduction of income as result of the relocation of rail transportation facilities due to the construction of Libby Dam.	P.L. 91-611

TABLE 29-B AUTHORIZING LEGISLATION
(Continued)

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	Mar. 7, 1974	Phase I design memorandum stage for installation of power generating facilities at Libby Reregulating Dam.	S.Doc. 29, 93d Cong., 1st Sess. P.L. 93-251
	Mar. 7, 1974	Construction of fish production measures to compensate for fish losses attributed to the project, and for acquisition of necessary real estate, construction of access roads and utilities (amends P.L. 91-282 by increasing limitation from $750,000 to $4,000,000).	P.L. 93-251
	Mar. 7, 1974	Acquisition of land (not to exceed $2,000,000) for prevention of wildlife grazing losses caused by the project.	P.L. 93-251
	Mar. 7, 1974	Reimbursement (not to exceed $350,000) to Boundary County, ID, for reconstruction of Deep Creek Bridge made necessary by duration of high flows during drawdown operations at Libby Dam.	P.L. 93-251
	Mar. 7, 1974	Compensation (not to exceed $1,500,000) to Drainage Districts and owners of leveed and unleveed lands in Kootenai Flats, Boundary County, ID, for damages caused by duration of higher flows during drawdown operations at Libby Dam.	P.L. 93-251
	Oct. 22, 1976	Amends P.L. 93-251 by increasing limitation from $350,000 to $380,000 for reimbursement to Boundary County, ID, for reconstruction of Deep Creek Bridge.	P.L. 94-587
	Nov. 17, 1988	Alleviate low water impact on existing facilities and protect Indian archeological sites exposed during course of operations, at an estimated cost of $750,000.	H. Doc. 1098, 100th Cong., 2d Sess. P.L. 100-676
28.		**CHERRY CREEK, ID**	
	Oct. 12, 1996	Aquatic ecosystem restoration.	Sec. 206, P.L. 104-303 Authorized by Chief of Engineers Aug. 20, 2002
29.		**CHIEF JOSEPH DAM DISSOLVED GAS ABATEMENT, WA**	
	July 24, 1946	In conjunction with Fish and Wildlife Services, investigate operational and structural gas abatement measures.	H. Doc. 693, 79th Cong., 2d Sess.
30.		**CODIGA FARMS, WA**	
	Nov. 17, 1986 as amended	Environmental restoration.	Sec. 1135, P.L. 99-662 Authorized by Chief of Engineers June 23, 2003
31.		**HOWARD A. HANSON DAM, WA**	
	Aug. 17, 1999	Environmental mitigation, restoration, and protection.	Sec. 101(b) (15) WRDA 1999 P.L. 106–53
32.		**PUGET SOUND AND ADJACENT WATERS RESTORATION, WA**	
	Dec. 11, 2000	Environmental mitigation, restoration, and protection.	Sec. 544 WRDA 2000 P.L. 106-541
33.		**RURAL MONTANA, MT (GRANT CREEK AT MISSOULA, MT)**	
	Aug. 17, 1999	Environmental infrastructure.	Sec. 595 WRDA 1999 P.L. 106-53

TABLE 29-B AUTHORIZING LEGISLATION
(Continued)

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
34.		**SWEENEY CREEK, WA**	
	Oct. 12, 1996	Aquatic ecosystem restoration.	Sec. 206, P.L. 104-303 Authorized by Chief of Engineers Aug. 12, 2002
35.		**UNION SLOUGH, WA**	
	Nov. 17, 1986 as amended	Environmental restoration.	Sec. 1135, P.L. 99-662 Authorized by Chief of Engineers July 30, 2003

1. Permanent Appropriations Repeal Act.
2. Included in Public Works Administration program.
3. Maintenance of these items, as well as sandspit north of James Island, is included in this modification.
4. Included in Emergency Relief program, May 28, 1935.
5. Supplemental Appropriations Act of 1968, Section 502.
6. Flood Control Act of 1968, Section 212.
7. River Basin Monetary Authorization and Miscellaneous Civil Works Amendments Act of 1970, Section 7.

TABLE 29-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30, 2003 Construction		Operation And Maintenance	
Anacortes Navigation Channel, WA 1	Completed	1977	825,263	7	$ –	
Bellingham Harbor, WA (I&J Street Waterway) 1	Completed	1966	125,634	8	–	
Blaine Harbor, WA	Completed	1958	346,650		–	
Blair Waterway, Tacoma, WA 1	Completed	2002	1,942,054	9	–	
Columbia River, Wenatchee to Kettle Falls, WA	Completed	1923	274,391	10	7,693	
East Bay Small Boat Basin, Olympia, WA 1	Completed	1985	1,619,956	11	–	
Edmonds Harbor, WA 2	Completed	1987	–		224,756	
Flathead River, MT	Completed	1901	9,811		–	
Grays Harbor, Point Chehalis, WA 3	Completed	1998	1,421,000		–	
Hammersley Inlet, WA	Completed	1950	9,000		10,683	
Hoquiam River, WA	Completed	1950	18,921	12	5,316	
Kenmore Navigation Channel, WA 1	Completed	2002	946,000		925,996	
Keystone Harbor, Admiralty Inlet, WA 1	Completed	1993	264,000	13	–	
Kingston Harbor, WA	Completed	1967	262,570	14	5,000	15
Kootenai River, ID and MT	Completed	1933	9,255		5,643	
Mats Mats Bay, WA 1	Completed	1970	137,679	16	–	
Neah Bay, WA 1	Completed	1997	3,874,920	17	–	
Olympia Harbor, WA	Completed	2000	337,709	18	1,071,162	19
Okanogan and Pend Oreille Rivers, WA	Abandoned	1913	63,879		7,634	
Polson Bay, Flathead Lake, MT	Completed	1918	4,491		259	
Port Angeles Harbor, WA 4	Completed	1960	470,873		–	
Port Gamble Harbor, WA	Completed	1953	11,911	20	13,337	
Port Orchard Bay, WA 5	Completed	1928	42,804		–	
Port Townsend, WA	Completed	1999	480,899	21	118,656	
Prototype Breakwater Test Program, WA 1	Completed	1985	1,461,590		–	
Shilshole Bay, Seattle, WA 6	Completed	1962	2,575,091	22	–	
Skagit River, WA	Completed	1950	102,330	23	36,258	
Squalicum Small Boat Harbor, Bellingham, WA 1	Completed	1981	1,744,025	24	–	
Tacoma Harbor, WA	Completed	2001	2,383,891	25	1,557,020	26
Waterway Connecting Port Townsend and Oak Bay, WA	Completed	1987	73,322		378,753	
Westhaven Cove Small Boat Basin, WA 1	Completed	1981	2,000,000	27	–	

TABLE 29-C OTHER AUTHORIZED NAVIGATION PROJECTS
(Continued)

1. Authorized by Chief of Engineers under authority of Section 107, Public Law 86-645.
2. Constructed by local interests at a cost of $415,000. Excludes $1,000 Coast Guard funds expended for new work. Corps of Engineers is responsible for maintenance.
3. Authorized by Chief of Engineers under authority of Section 111, Public Law 90-483.
4. Maintenance by Port of Port Angeles.
5. No maintenance required.
6. Maintenance by Port of Seattle.
7. Excludes $457,200 contributed funds expended.
8. Excludes $2,500 Coast Guard funds expended.
9. Excludes $1,883,278 contributed funds expended.
10. Includes $8,005 appropriated and expended for previous project.
11. Excludes $2,184,766 contributed funds expended.
12. Excludes $32,373 Emergency Relief funds expended.
13. Excludes $114,272 contributed funds expended.
14. Excludes $390,753 contributed funds and $3,000 Coast Guard funds expended.
15. Mitigation of shore damages study.
16. Excludes $28,288 contributed funds and $9,000 Coast Guard funds expended.
17. Excludes $528,188 contributed funds expended.
18. Includes $183,257 appropriated and expended for previous projects. Excludes $105,467 Public Works Administration funds expended.
19. Includes $14,418 appropriated and expended for previous project.
20. Excludes $21,260 contributed funds expended.
21. Excludes $92,423 contributed funds expended.
22. Excludes $15,000 Coast Guard funds expended.
23. Includes $2,500 appropriated and expended for previous project.
24. Excludes $1,570,886 contributed funds expended.
25. Includes $159,585 appropriated and expended for previous project. Excludes $51,609 Public Works Administration funds and $1,147,208 contributed funds expended.
26. Includes $5,347 appropriated and expended for previous projects. Excludes $222,500 contributed funds expended.
27. Excludes $1,230,035 contributed funds expended.

TABLE 29-D OTHER AUTHORIZED SHORE PROTECTION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Contributed Funds
Lincoln Park Beach, Seattle, WA	Completed	2002	1,045,832	432,211
Lummi Shore Road, WA	Completed	1999	1,980,391	924,195

TABLE 29-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30, 2003 Construction	Cost to Sep. 30, 2003 Contributed Funds
American Lake, Vicinity of Fort Lewis, WA 1	Completed	1957	59,582	10,000
Bear Creek, Flathead County Bridge, near Essex, MT 2	Completed	1971	1,424	–
Bitterroot River, Florence, MT 2	Completed	1990	180,950	49,759
Blackfoot River, Matt Little Road, MT 2	Completed	1964	17,836	–
Bogachiel River, Highway 101, near Forks, WA 2	Completed	1981	156,000	–
Bogachiel River, Undie Road, Forks, WA 2	Completed	1981	57,000	–
Cedar River, King County, WA 3	Completed	1953	3,229	–
Cedar River, Renton, WA 1	Completed	2001	5,292,186	3,198,738
Cedar River, Renton, WA 2	Completed	1949	32,264	–
Chehalis River, City of Chehalis Raw Water Pumphouse, WA 2	Completed	1966	35,454	–
Chehalis River, Independence Road, Thurston County, WA 2	Completed	1965	47,916	–
Chehalis River, Montesano, WA 2	Completed	1977	140,080	–
Chehalis River at South Aberdeen and Cosmopolis, WA	Completed	1998	8,301,833 5	1,538,784
Clallam Bay, Sekiu, WA 2	Completed	1977	48,698	–
Clallam Bay at Sekiu, Clallam County, WA 2	Completed	1994	178,800	39,818
Clallam River, Highway 112, WA 2	Completed	1981	43,500	–
Clark Fork River, near Garrison, MT 2	Completed	1993	80,611	16,973
Clark Fork River, Drummond, MT 2	Completed	1978	18,660	–
Clark Fork River, Missoula, MT 2	Completed	1978	31,548	–

TABLE 29-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS
(Continued)

Project	Status	For Last Full Report See Annual Report For	Construction		Cost to Sep. 30, 2003 Contributed Funds
Clark Fork River, Superior, MT 2	Completed	1971	28,357		–
Clark Fork River, Vicinity of Plains, MT 2	Completed	1950	27,947		–
Clearwater River, Jefferson County Road, WA 2	Completed	1968	50,000		24,728
Clearwater River, Queets River Bridge, WA 2	Completed	1950	49,165		–
Coeur d'Alene, Spokane River, ID	Completed	1941	152,872		–
Coeur d'Alene River, Springston, ID 2	Completed	1950	25,452		–
Coffee Creek, WA 3	Completed	1966	15,000		–
Columbia River Basin, Local Protection Projects, ID, MT, and WA					
Clark Fork River, Missoula, MT	Completed	1983	384,862	6	13,500
Lightning Creek, Clark Fork, ID	Completed	1959	42,726		–
Deschutes River, Gleason Road Bridge near Tumwater, WA 2	Completed	1965	26,292		–
Deschutes River, Rich Road Bridge, near East Olympia, WA 2	Completed	1967	22,956		–
Dungeness River, Area 5, WA 2	Completed	1950	2,155		2,155
Dungeness River, Area 8, WA 2	Completed	1950	2,895		2,895
Dungeness River, Clallam County, WA 1	Completed	1964	52,040	7	–
Dungeness River, Sequim, WA 2	Completed	1981	99,000		–
Dungeness River, Clallam County, WA 2	Completed	1986	47,500		–
Dungeness River, Taylor Cut-off Road, WA 2	Completed	1961	14,093		3,314
Elwha Klallam Reservation, Elwha River, WA 1	Completed	1991	1,455,023		119,449
Elwha River, Clallam County, WA 2	Completed	1951	17,303		–
Entiat River, WA 3	Completed	1971	49,300		–
Entiat River, Chelan County, WA 2	Completed	1978	38,000		–
Flathead River, MT 2	Completed	1972	20,940		–
Flathead River, Bradley Channel Area, MT 2	Completed	1955	26,265		–
Flathead River, near Kalispell, MT 1	Completed	1995	81,500		13,467
Flathead River, near Kalispell, MT 2	Completed	1948	33,347		–
Flathead River, Old Steel Bridge, near Kalispell, MT 2	Completed	1964	13,438		–
Flathead River (North Fork), MT	Completed	1999	79,105		–
Flower and Parmenter Creeks, MT 3	Completed	1950	2,320		–
Foster Creek (West Fork), WA 2	Completed	1958	19,513		–
Foster Creek Road, Douglas County, WA 2	Completed	1962	50,000		–
Green River between Kent and Auburn, WA and Allentown, WA 2	Completed	1972	24,605		–
Green River, State Highway 181, WA 2	Completed	1976	27,001		–
Henderson Bay, Purdy, WA 2	Completed	1977	37,359		–
Hoh River, County Road 216, WA 2	Completed	1980	143,000		–
Hoh River, U.S. Highway 101, WA 2	Completed	1980	194,000		–
Hoh River Road, Jefferson County, WA (HO 1360) 2	Completed	1956	22,082		21,807
Hoh River Road, Jefferson County, WA (HO 1361) 2	Completed	1961	11,916		–
Hoh River Road, Jefferson County, WA (HO 1362) 2	Completed	1964	41,622		–
Hoh River, near Forks, WA 2	Completed	1983	173,000	8	–
Hoko River, Sekiu, WA 2	Completed	1977	21,083		–
Hood Canal, Hoodsport, WA 2	Completed	1977	59,812		–
Hoquiam River, WA 2	Completed	1977	52,600		–
Horseshoe Bend, WA 1	Completed	1997	204,989		9,146
Jackman Creek, Skagit River, WA 3	Completed	1962	24,000		–
Kootenai River, Bonners Ferry, ID 2	Completed	1950	42,325		–
Kootenai River, Kootenai Flats Area, District #1, ID 2	Completed	1965	14,885		–
La Conner, WA	Completed	1996	955,000	9	246,889
La Conner, Swinomish Channel, WA 2	Completed	1979	40,525		–
Long Road, Chehalis River, WA 1	Completed	2001	413,817		140,015
Lower Green River, King County, WA 1	Completed	1993	912,000		120,518
Lummi Shore Road, Whatcom County, WA 2	Completed	1995	482,000		134,772
Methow River, WA (MET 1-74) 2	Completed	1974	15,700		–
Methow River, WA (MET 2-74)2	Completed	1974	11,200		–
Methow River, WA (MET 3-74) 2	Completed	1974	13,450		–
Methow River, Barclay Canal, WA 2	Completed	1976	19,810		–
Methow River, State Highway No. 16 Bridge, Twisp, WA 2	Completed	1949	31,783		–

TABLE 29-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS
(Continued)

Project	Status	For Last Full Report See Annual Report For	Construction		Cost to Sep. 30, 2003 Contributed Funds
Methow River, Twisp-Carlton Highway, Vicinity of Twisp, WA 2	Completed	1951	33,300		6,786
Methow River, Vicinity of Pateros, WA 2	Completed	1951	11,726		11,726
Milo Creek, Kellogg, ID	Completed	2001	1,000,000		–
Mineral Creek, Lewis County, WA 2	Completed	1972	11,836		–
Missoula, MT (Sewage Treatment Plant) 2	Completed	1965	50,000		–
Moclips River, Moclips, WA 2	Completed	1977	17,608		–
Naches River, Naches, WA 2	Completed	1982	59,000		–
Neah Bay, Clallam County, WA 2	Completed	1991	253,995		78,433
Newaukum River, Lewis County, Hamilton, WA 2	Completed	1972	24,792		–
Nisqually River, near Elbe, WA 2	Completed	1948	37,636		–
Nisqually River, Thurston County, WA 2	Completed	1960	26,790		–
Nisqually River, Vicinity of Elbe, WA 2	Completed	1952	19,345		–
Nooksack River, WA 3	Completed	1948	24,006		–
Nooksack River, Acme, WA 2	Completed	1985	77,300		–
Nooksack River, Guide Bridge Location, WA 2	Completed	1950	6,075		6,075
Nooksack River, Middle Fork, Deming, WA 2	Completed	1986	79,000		–
Nooksack River, above Highway 12 Bridge, WA 2	Completed	1960	10,807		–
Okanogan River, WA 2	Completed	1974	10,100		–
Okanogan River at Outlet of Osoyoos Lake, WA 3	Completed	1949	52,100		–
Okanogan River, Tonasket Creek and Osoyoos Lake, WA 3	Completed	1953	7,987		–
Okanogan River, Omak, WA 1	Completed	1981	2,231,030		–
Okanogan River, Oroville, WA 1	Completed	1982	1,787,630		–
Pilchuck River, WA 3	Completed	1948	25,401		–
Pilchuck River, WA 2	Completed	1985	81,000		–
Pilchuck River, WA 2	Completed	1971	10,713		–
Pilchuck River, Everett, WA 2	Completed	1980	54,000		–
Pilchuck River, State Highway 92, Granite Falls, WA 2	Completed	1971	30,973		–
Placer Creek, ID	Completed	1986	5,865,000		–
Powell County High School, Deer Lodge, MT 2	Completed	1964	11,291		–
Puyallup River, WA	Completed	1937	50,000	10	–
Pysht River, Sekiu, WA 2	Completed	1977	86,160		–
Queets River, Jefferson County Sewage Lagoon, WA 2	Completed	1981	125,000		–
Quillayute River, Quileute Tribal Float and Bridge, WA 2	Completed	1972	39,300		–
Quinalt River, Grays Harbor, WA 2	Completed	1981	208,000		–
Quinalt River Road, Jefferson County, WA 2	Completed	1961	15,928		4,943
Rock Creek, Granite County, MT 2	Completed	1974	49,657		–
Rock Creek, Missoula County, MT 2	Completed	1973	31,565		–
Rock Creek Road, MT 2	Completed	1980	50,000		–
Rye Creek, MT 2	Completed	1973	22,819		–
St. Maries, St. Joe River, ID	Completed	1942	357,698		–
St. Regis River, MT 3	Completed	1942	7,234	11	–
St. Regis River at St. Regis, MT3	Completed	1951	2,983		–
Sammamish River, WA	Completed	1967	2,582,536	12	696,923
Sauk River, WA 2	Completed	1974	20,860		–
Sauk River, Skagit County, WA 2	Completed	1989	119,600		32,778
Shelton Creek, WA 1	Completed	1979	872,021		–
Skagit River at Burlington Bend, WA 2	Completed	1949	50,000		–
Skagit River, Cape Horn Road, WA 2	Completed	1966	46,489		–
Skagit River, Deadman's Slough, WA2	Completed	1980	93,000		–
Skagit River, Pressentin Creek, WA 2	Completed	1980	137,000		–
Skagit River, South Skagit Highway, WA 2	Completed	1963	40,753		–
Skagit River, South Skagit Highway, WA (Job 66-1) 2	Completed	1966	17,719		–
Skagit River, South Skagit Highway, WA (Job 67-1) 2	Completed	1967	50,000		24,488
Skykomish River, North Fork, Index, WA 2	Completed	1981	222,500		–
Snohomish River, Lowell-Snohomish River Road, WA 2	Completed	1969	44,227		–
Snohomish River, Snohomish, WA 2	Completed	1970	60,900		14,307
Snoqualmie River, West Snoqualmie, WA 2	Completed	1977	15,565		–
Soleduck River Bridge, WA 2	Completed	1961	16,437		1,960
Soleduck River, near Mora Road Bridge, WA 2	Completed	1963	11,433		–
Spokane River, Spokane, WA 2	Completed	1989	122,138		79,311
Startup, Skykomish and Wallace Rivers, WA 1	Completed	1970	271,713		–

TABLE 29-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS (Continued)

Project	Status	For Last Full Report See Annual Report For	Construction		Cost to Sep. 30, 2003 Contributed Funds
Stillaguamish River, South Fork, Mountain Loop Highway near Robe, WA 2	Completed	1964	50,000		46,182
Stillwater River, MT 2	Completed	1973	17,457		–
Stillwater and Whitefish Rivers, MT 2	Completed	1977	34,513		–
Strong Creek, Hope, ID 2	Completed	1970	8,442		–
Tahola, WA 2	Completed	1979	223,893		–
Upper Puyallup River, WA 4	Completed	1938	71,495	13	13,704
Willapa River, Raymond, WA 2	Completed	2000	88,504		32,101
Wynoochee Lake, WA	Completed	1994	23,494,445	14	–
Wynoochee River, County Road 141, WA 2	Completed	1976	111,072		–
Wynoochee River, near Montesano, WA 2	Completed	1969	50,000		21,311
Wynoochee River, near Montesano, WA (WR-1-72) 2	Completed	1972	50,000	15	–
Yakima, Yakima River, WA	Completed	1948	381,961		–
Yakima River, Cle Elum, WA 2	Completed	1949	8,047		–
Yakima River, below mouth of Teanaway River near Cle Elum, WA 2	Completed	1947	48,272		–
Yakima River, West Richland, WA 2	Completed	1977	36,768		–
Yakima River, Yakima WA 2	Completed	1983	125,500	16	–

1. Authorized by Chief of Engineers under authority of Section 205, Public Law 858, 80th Congress, as amended.
2. Authorized by Chief of Engineers under authority of Section 14, Public Law 526, 79th Congress, as amended.
3. Authorized by Chief of Engineers under authority of Section 2, Public Law 406, 75th Congress, as amended.
4. Authorized by Works Progress Administration Project No. OP 65-93-917.
5. Includes $2,212,000 for Preconstruction Engineering and Design, appropriated and expended.
6. Includes $7,850 appropriated and expended for recreation facilities at completed project (Code 710).
7. Excludes $340,066 Public Works Acceleration Act funds expended.
8. Productive Employment Appropriation Act of 1983 (P.L. 98-8). Excludes $189,000 Federal Highway Administration funds expended.
9. Includes $183,000 for Preconstruction Engineering and Design, appropriated and expended.
10. Emergency Relief funds, Works Progress Administration.
11. Excludes amount expended by Works Progress Administration which is not available.
12. Excludes $1,000 Coast Guard funds expended.
13. Emergency Relief funds, Works Progress Administration.
14. Includes $102,200 appropriated and expended for recreation facilities at completed project (Code 710). Excludes $17,070,670 for project maintenance and $66,678 for Maintenance and Operation of Dams and Other Improvements of Navigable Waters, appropriated and expended.
15. Excludes $17,988 Office of Emergency Planning funds expended.
16. Includes $118,000 expended under Productive Employment Appropriation Act of 1983 (P.L. 98-8).

TABLE 29-F OTHER AUTHORIZED MULTIPLE-PURPOSE POWER PROJECTS

Project	For Last Full Report See Annual Report For	Construction		Cost to Sep. 30, 2003 Operation and Maintenance
Priest Rapids Dam, Columbia River, WA	1954	$350,000	1	–

1. For partnership planning. Excludes funds expended for acquisition of lands under partnership arrangement for Priest Rapids and Wanapum Dams, in accordance with Public Law 544, 83d Congress. Project constructed by Grant County Public Utility District.

TABLE 29-G OTHER AUTHORIZED ENVIRONMENTAL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Cost to Sep. 30, 2003 Contributed Funds
Deepwater Slough, WA 1	Completed	2001	1,985,642	108,560
Goldsborough Creek, WA 2	Completed	2002	3,397,000	3,387,557
Howard A. Hanson Dam, WA 1	Completed	2002	355,900	354,605
Lake Washington Ship Canal, WA 1	Completed	2001	1,715,186	584,162
Loomis Lake, WA 2	Completed	2002	62,453	13,544
Porter Levee, WA 1	Completed	2000	158,471	18,166
Puget Creek, WA 1	Completed	2000	111,894	–
Sammamish River Restoration, WA 1	Completed	1995	326,900	64,333
Sammamish River Weir Restoration, WA 1	Completed	2000	185,246	38,244
Thornton Creek, WA 1	Completed	2000	286,364	28,500
Turning Basin #3, Seattle, WA 1	Completed	2001	1,907,458	–

1. Section 1135, Public Law 99-662, as amended.
2. Section 206, Public Law 104-302.

TABLE 29-I OTHER AUTHORIZED PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Cost to Sep. 30, 2003 Contributed Funds
Aquatic Plant Control	Completed	1997	6,023,906	–
Green River, King County, WA	Completed	1985	498,320	–
Oak Harbor, WA	Completed	1983	519,000	–

TABLE 29-J DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended		Contributed Funds Expended
Blair and Sitcum Waterways, Tacoma Harbor, WA 6	–	2002	1,310,000	14,19	–
Calispell Creek, WA 1	1968	1968	25,000	14	–
Columbia River Basin, Local Protection Projects, ID, MT, and WA					
Crab and Wilson Creeks, WA 2	1958	1964	9,000	14	–
Entiat River, WA 3	1958	1986	–		–
Methow River, WA 3	1958	1986	–		–
Okanogan River, WA 3	1958	1986	1,100	14	–
St. Regis River, MT 4	1958	1978	1,400	14	–
Wenatchee River, WA 4	1958	1978	–		–
Yakima River at Ellensburg, WA 3	1980	1986	44,300	14, 15	–
East, West and Duwamish Waterways, Seattle Harbor, WA 6	–	2002	663,000	14	–
Everett Harbor and Snohomish River, WA (RH 68) 7	1973	1990	52,000	14	–
Flathead River at Kalispell, MT 7	1981	1995	300,000	14	–
Grays Harbor and Chehalis River, WA (RH 48) (Unconstructed Portion) 7,8	1962	1990	–		–
Grays Harbor and Chehalis River, WA (RH 30) 7,9	1933	1990	35,834		35,834
Hammersley Inlet, WA (RH 30) (Unconstructed Portion) 4,10	1950	1978	–		–
Hoquiam, Aberdeen, and Cosmopolis, Chehalis River, WA 5	1948	1952	83,631	14	–
Olympia Harbor, WA (RH 45) 7	1973	1990	21,606	14,16	–
Port Angeles Harbor, WA (RH 35) 4	1960	1977	–		–

TABLE 29-J DEAUTHORIZED PROJECTS
(Continued)

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended		Contributed Funds Expended
Port Gamble Harbor, WA) (RH 35) 4	1953	1977	–		
Quillayute River, WA(RH 30) (Unconstructed Portion) 3,11	1986	1986	–		–
Seattle Harbor, WA (RH 30) (Unconstructed Portion) 3,12	1986	1986	–		–
Skagit River, WA (RH 10) (Unconstructed Portion) 4,13	1950	1978	–		–
Skagit River, WA (RH19) 4	1950	1978	–		–
Skagit River, WA (Avon Pass) 7	1968	1990	54,468	14	–
Skagit River, WA (Levee and Channel Improvements) 7	1982	1995	1,934,792		–
Spokane River, Spokane, WA 3	1939	1986	2,944	14	–
Stillaguamish River, WA (RH 45) 3	1946	1986	4,234	17	–
Wenatchee, Canyons 1 and 2, WA 7	1978	1990	544,331	14	–
Willapa River at Raymond, WA 7	1982	1995	508,130	14, 18	–
Yakima River at Union Gap, WA 6	–	2002	502,000	14	–

1. Authority for project expired October 27, 1968.
2. Authority for project expired July 1964.
3. Deauthorized under authority of Section 1002, P.L. 99-662 dated November 17, 1986.
4. Deauthorized under authority of Section 12, P.L. 93-251 dated March 7, 1974.
5. Authority for project expired in October 1952.
6. Deauthorized under authority of Section 1001 (b) (2), P.L. 99-662 dated November 17, 1986, as amended.
7. Deauthorized under authority of Section 1001 (b) (1), P.L. 99-662 dated November 17, 1986.
8. 2200 linear feet of revetment at Point Chehalis.
9. 16-foot channel from Cosmopolis to Montesano.
10. Deepening shoal area near Cannery Point from 10 to 13 feet.
11. Groin feature of the project.
12. Settling basin at upper end of existing Duwamish Waterway, about 1.4 miles above 14th Avenue South Bridge.
13. 5500-foot extension of training dike.
14. Preconstruction planning only.
15. Includes $14,300 expended for restudy, FY 1970.
16. Includes $18,700 expended for restudy, FY 1968-1973.
17. Economic restudy only.
18. Includes $8,888 expended for restudy, FY 1967-1972.
19. Includes $300,000 appropriated and expended under Section 101(c).

TABLE 29-K LAKE WASHINGTON SHIP CANAL, WA, PRINCIPAL FEATURES OF DOUBLE LOCK AND DAM (SEE SECTION 8)

Section			Large Lock	Small Lock
Miles above mouth			1 ¼	1 ¼
Clear width of chamber		Feet	80	28
Maximum available length		Feet	760	123
Lift		Feet	26	26
Depth on upper miter sill	1	Feet	33 ½	16
Depth on intermediate miter sill	2	Feet	29	–
Depth on lower miter sill	2	Feet	29	16
Character of foundation			Clay	Clay
Kind of dam			Fixed dam with gated spillway	Fixed dam with gated spillway
Type of construction			Concrete	Concrete
Year completed			1916	1916
Cost			3	3

1. Low water in upper pool.
2. Mean lower low water in Puget Sound.
3. Cost of double lock and dam was $2,382,200 and the emergency gates, completed in 1923, $262,300.

TABLE 29-L FLOOD CONTROL ACTIVITIES PURSUANT TO SECTION 205, PUBLIC LAW 858, 80TH CONGRESS, AS AMENDED (PREAUTHORIZATION)

Study Identification	Fiscal Year Costs (2003)	
Conconully, WA	0	1
Concrete, WA	117	1
Northbend, WA	448	
Rural Montana Program, MT (Grant Creek at Missoula, MT)	4,973	
Section 205 Coordination	15,141	
Snoqualmie River, WA	146,984	2
Stillaguamish River Valley, Stanwood, WA	2,869	3
St. Maries, ID	0	4
TOTAL	$170,532	

1. Terminated.
2. Excludes $-2,255 contributed funds expended.
3. Excludes $1,955 contributed funds expended
4. Construction initiated in FY 2003.

TABLE 29-M FLOOD CONTROL ACTIVITIES PURSUANT TO SECTION 14, PUBLIC LAW 526, 79TH CONGRESS, AS AMENDED (PREAUTHORIZATION)

Study Identification	Fiscal Year Costs (2003)	
Bogachiel River, WA	31,963	
Coeur d'Alene River (South Fork), Wallace, ID	0	1
Emma Schmitz Seawall, Seattle, WA	40,040	
Goldsborough Creek, Shelton, WA	0	2
Independence Road, Centralia, WA	0	2
Sauk-Suiattle near Darrington, WA	393	2
Section 14 Coordination	13,921	
Upper Hoh Road, Forks, WA	499	2
TOTAL	$86,816	

1. Construction initiated in FY 2003.
2. Terminated

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TABLE 29-N ENVIRONMENTAL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Study Identification	Fiscal Year Costs (2003)	
Bear Creek Restoration, WA	11,306	2
Carpenter Creek, WA (Sec. 1135)	0	2,5
Carpenter Creek, WA (Sec. 206)	265,636	3
Cedar River @ RM 7.4, WA	0	3,4
Codiga Farms, WA	0	1,2
Harper Estuary, WA	212,015	3
Issaquah Creek, WA	114,311	3
Little Baker River, WA	82,639	3
Little Oak Bay, WA	10,476	2
Lower Puyallup River, WA	242,800	2
Mapes Creek, WA	9,410	2
Nooksack River Diversion Dam (Middle Fork), WA	11,857	3
Nooksack River (South Fork), WA	27,368	3

TABLE 29-N ENVIRONMENTAL ACTIVITIES UNDER SPECIAL AUTHORIZATION
(Continued)

Study Identification	Fiscal Year Costs (2003)	
North Satus Drain, Yakima, WA	433,790	3
Old Soldier's Home, Orting, WA	184,799	3
Port of Sunnyside, WA	53,787	3
Preliminary Restoration Plans (Sec. 206)	109	3
Preliminary Restoration Plans (Sec. 1135)	59	2
Satsop River, WA	303,734	3
Seahurst Park, Burien, WA	115,759	3
Section 206 Coordination	33,146	3
Section 1135 Coordination	35,629	2
Snoqualmie River (Mid Fork), WA	1,833	3,4
Squak Valley Park, WA	140,021	3
Stillaguamish Old Channel, WA	97	2,4
Tokul River, WA	46,769	3
Union Slough, WA	0	1,2
Whatcom Creek Estuary, WA	10,409	2,4
Willapa River, WA	40,134	2
Wynoochee Anadromous Fish, WA	494,843	2
TOTAL	$2,882,736	

1. Construction initiated in FY 2003.
2. Section 1135, Public Law 99-662, as amended.
3. Section 206, Public Law 104-303.
4. Terminated
5. Converted to Section 206.

WALLA WALLA, WA, DISTRICT

This U.S. Army Corps of Engineers (Corps), Walla Walla District (District), consists of all Columbia River drainage and tributaries thereto between the head of the McNary Reservoir (Lake Wallula) (river mile 345.4) and Umatilla Bridge (river mile 290.5) below McNary Lock and Dam, except the Yakima River Basin above the Van Giesen Street Bridge (river mile 8.4) near Richland, WA. The primary tributary drainage area is the Snake River that includes more than 107,000 square miles in six states: Washington, Oregon, Idaho, Wyoming, and small portions of Nevada and Utah.

IMPROVEMENTS

Flood Control

Multipurpose Projects, Including Power

General Investigations

Tables

Flood Control

1. COLUMBIA RIVER BASIN, LOCAL FLOOD PROTECTION PROJECTS

Location. Improvements included in this project are along the Columbia River and its tributaries.

Existing project. The Flood Control Act of 1950 approved a general comprehensive plan for the Columbia River Basin for flood control and other purposes based on plans in H. Doc. 531, 81st Congress, 2nd Session, and authorized $75 million to be appropriated for partial accomplishment of certain projects. From that authorization, an amount (not to exceed $15 million) was allotted for construction of local flood protection works throughout the Columbia River Basin, subject to conditions that all work undertaken pursuant to authorization would be economically justified prior to construction, and local cooperation specified in the Flood Control Act of 1936, as amended, should be required.

Local cooperation. Section 3, Flood Control Act of June 22, 1936, applies.

Operations during the fiscal year (FY). No projects were deauthorized.

2. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Federal law requires local interests to maintain and operate completed local protection projects in accordance with regulations prescribed by the Secretary of the Army. Inspections were made to determine the extent of compliance and to advise local interests, as necessary, of measures required to correct deficiencies.

The FY costs were $71,552. Total costs through September 30, 2003, were $3,163,113.

3. JACKSON HOLE, WY

Location. This project is located on the banks of the Snake River, Teton County, west of Jackson, WY.

Existing project. On the Snake River, approximately 23.5 miles of Federally-constructed levees consist of the following: (1) On the right bank: a series of levees, off-set levees, and bank protection structures, all with full riprap protection from 10 miles upstream of the Jackson-Wilson Bridge to 3.5 miles below the bridge for a total of 13.5 miles; and (2) On the left bank: a series of Federally-constructed levees and bank protection structures, all with full riprap protection, extending from 10 miles upstream of the Jackson-Wilson Bridge to 5 miles upstream. The project resumes 1.5 miles immediately upstream of the same bridge and continues to 3.5 miles below the bridge for a total of 10 miles. In addition, a series of Federal and non-Federal constructed levees, with a total length of approximately 5 miles, most having some or full riprap protection, are interspersed along both banks of the Snake River from Highway 26 Bridge to 4 miles downstream of the Jackson-Wilson Bridge.

The project also includes riprap-protected levees on the left and right banks of the Gros Ventre River. The left bank levee begins 1.5 miles west of Cattlemen's Bridge and extends 0.5 mile east of the same bridge. The right bank levee begins 0.5 mile west of Cattlemen's Bridge and extends 0.3 mile east of the same bridge.

The Project is authorized by Public Law (PL) 81-516, Flood Control Act of 1950, for flood control protection by channel improvements consisting of channel rectification, levees, and revetments along the Snake River in the vicinity of Wilson, WY. The PL 104-303 modified the original PL 81-516 to ensure the operation, maintenance, modifications, and additions to the project become Federal responsibility.

Local cooperation. Non-Federal sponsors pay the initial $35,000 in cash or materials of any such costs expended in any 1 year, plus inflation as of the date of enactment of the Water Resources Development Act of 1986.

Since 1978, $63,946,000 (adjusted to October 2003 price index) in potential flood damages has been prevented by the levees.

Operations during FY. Teton County, under their Local Cooperative Agreement, worked with the Corps performing levee maintenance. The FY costs were $655,267. (See table 30-A, Cost and Financial Statement.)

New Project. The Water Resources Development Act of 2000 authorized the Upper Snake River Restoration Project. Congress added new start funding to the FY 03 budget. The project is located in and along a 22-mile stretch of the Upper

Snake River near Jackson, WY, in Teton County. It is partially in and adjacent to Grand Teton National Park, the National Elk Refuge, and in close proximity to Yellowstone National Park. The project will restore fish and wildlife habitat that was lost as a result of construction, operation, and maintenance of levees constructed by Federal and non-Federal interests. Restoration measures include eco-fences, channel capacity excavation, spur dikes, anchored rootwads, rock grade control, and secondary channels, off-channel and channel stabilization pools. The project has a 14-year phased construction schedule and includes continuing construction, adaptive management, and monitoring to provide implementation flexibility. The FY 03 activities closed out the pre-construction engineering and design phase; prepared non-standard project cooperation agreement submittal package for Headquarters review; and completed biddability, constructability, operability, and environmental review of contract plans and specifications for Site 9. The FY 03 Construction General costs were $33,000, and $569,000 has been programmed for FY 04.

4. LUCKY PEAK LAKE, ID

Location. This project is located on the Boise River in southwestern Idaho about 10 miles southeast of the city of Boise, ID. (See table 30-B for Authorizing Legislation of projects in the District).

Existing project. The project includes a rolled earthfill dam about 250 feet above the streambed and 1,700 feet long at the crest, with a lake providing a total storage at upper operating lake level of 306,000 acre-feet. The project provides for flood control, irrigation, and recreation.

Construction of the existing project was initiated in November 1949 and completed in June 1961. Since 1961, $594,837,000 (adjusted to October 2003 price index) in potential flood damages has been prevented by the project.

During a detailed study of outlet capacity and potential for adding hydropower to the existing project, a need for an auxiliary outlet became apparent. Construction of an auxiliary outlet was authorized in the Water Resource Development Act of 1976. In FY 78, an *Interim Feasibility Report on Modification of Lucky Peak Dam and Lake* (power facilities) was submitted to the Board of Engineers for Rivers and Harbors and approved. States, agencies, and the Chief of Engineers commented on the report to the Secretary of the Army. The report was forwarded to the Office of Management and Budget in February 1982.

A license to construct and operate power facilities at the project was issued by the Federal Energy Regulatory Commission (FERC) (Project #2832) to the Boise Project Board of Control on June 10, 1980, and modified on October 9, 1980, and in 1982. Construction of the auxiliary outlet facility began in May 1984 and was completed in August 1986. Construction of modifications to the existing outlet tunnel and powerhouse excavation began in August 1986 and was completed January 1987. Powerhouse general contract construction began in April 1986. The project was completed and dedicated on October 7, 1988. Power on-line for all units was initiated on August 18, 1988. A Federally-authorized second outlet was deauthorized in FY 90.

Recreation facilities at Lucky Peak Lake consist of 20 picnic/day-use areas, 4 boat launch ramps, and 3 swimming areas. The FY visitation to Lucky Peak Lake was 661,317.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Normal operation and maintenance, which included the dam structures and recreation areas, continued. The FY costs were $1,571,213. (See table 30-A, Cost and Financial Statement.)

5. MILL CREEK, BENNINGTON LAKE, WA

Location. This project is located in and upstream from Walla Walla, WA, on Mill Creek, a tributary of the Walla Walla River.

Existing project. The project includes an off-stream earthfill storage dam, about 125 feet above the streambed and 3,200 feet long at the crest, two concrete-lined outlet channels, an earthfill diversion dam, and diversion structures. The project provides for flood control and recreation. Authorizing legislation to provide a channel through the city of Walla Walla was added to the project in 1941. Recreation was added to the project purposes through the Federal Water Project Recreation Act of 1965.

Construction of the dam and appurtenant works was completed in 1942. Paving of the channel through the city of Walla Walla was completed in 1966. Since 1942, $51,481,000 (adjusted to October 2003 price index) in potential flood damages has

been prevented by the combined storage and channel operation.

Rehabilitation of the existing project was initiated in FY 78 and completed in FY 79. The plan of rehabilitation included action to correct the seepage and internal erosion that has occurred during each subsequent filling of the reservoir. A cutoff wall was constructed but did not alleviate the seepage problem, thus requiring limited flood control use of the project. The seepage and internal erosion create a high vulnerability for dam failure.

Mill Creek/Bennington Lake offers visitors three day-use/picnic areas and one boat launch ramp. Visitation to Mill Creek/Bennington Lake for the FY was 164,053.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Normal operation and maintenance continued, which included regulation of water control structures and care of recreation areas. The right abutment test grouting contract was initiated. The FY costs were $1,078,734. (See table 30-A, Cost and Financial Statement.)

6. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Functional regulation of non-Corps projects was accomplished under several authorities. Regulation was accomplished as authorized under Section 7, Flood Control Act of 1944, and coordinated with the Bureau of Reclamation for Palisades, Little Wood, and Anderson Ranch Reservoirs, ID; and Bully Creek, Warm Springs, Agency Valley, and Mason Reservoirs, OR.

Flood control operations at Jackson Lake, WY, Arrowrock Reservoir and Lake Lowell, ID, were in accordance with formal agreements with the Bureau of Reclamation. Flood control regulation was accomplished under informal agreements for the Owyhee Reservoir, OR; and American Falls, Magic, Mackay, Cascade, and Deadwood Reservoirs, ID. Brownlee and Oxbow Reservoirs, OR, and Hells Canyon Reservoir, OR and ID, provided flood control regulation in accordance with provisions of the Federal Power Commission license to Idaho Power Company. The FY costs were $311,027.

Multipurpose Projects, Including Power

7. COLUMBIA RIVER FISH MITIGATION PROGRAM (WALLA WALLA PROJECTS), OR, WA, AND ID

Location. This project is located at Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams on the lower Snake River in the State of Washington and McNary Lock and Dam on the Columbia River in the states of Oregon and Washington.

Existing project. The eight Corps hydroelectric projects on the Columbia and lower Snake Rivers have been identified as a major contributing factor in causing mortality to downstream migrating juvenile salmon and steelhead. Without adequate bypass facilities to guide these juvenile fish away from the power turbines at the dams, mortalities incurred through project passage severely impact the commercial, recreational, and Indian fisheries. The Corps has recognized the need to reduce juvenile fish mortality and has undertaken bypass measures that include mechanized fish bypass systems with barge and truck transportation. Spill as an additional bypass route over the spillways has been used to divert fish from entering turbine units, but it is a significant adverse economic factor due to lost power revenues. Congress passed, and the President signed, the FY 89 Energy and Water Development Appropriation Act (PL 100-371), which mandated the expenditure of funds for the design, testing, and construction of new or improved fish bypass facilities for the Columbia River fish mitigation projects. Completion of bypass and transportation facilities will significantly increase the survival of migrating downstream juvenile fish. The mitigation study will determine the overall scope of the fish mitigation facilities for these Columbia and lower Snake River dams. The mitigation study project was added to the President's FY 91 budget.

The plan of improvement includes the following facilities: (1) Ice Harbor Lock and Dam: screens, new gantry crane, collection bypass facility, intake gate raise, spillway deflectors, surface bypass, and fish ladder temperature control; (2) Lower Monumental Lock and Dam: hold/load and collection bypass facility, screens, passive integrated transponder tag (PIT-Tag) facility, barge load facility modifications, barges, gate raise modifications, gantry crane, fish ladder temperature control, and surface bypass; (3) Little Goose Lock and Dam: screens, gantry crane modification, collection bypass

facility, outfall pipe, fish ladder temperature control, fallout fences, gate raise, deck screen modifications, PIT-Tag facility, and surface bypass; (4) Lower Granite Lock and Dam: juvenile fish facility, gantry crane, gate raise, outfall pipe, fish barges, screens, additional moorage facility, fish slot closures, juvenile fish facility improvements, barge exit modifications, deck screen modifications, fish ladder temperature control, surface bypass, PIT-Tag facility, and fallout fences; and (5) McNary Lock and Dam: gantry crane, screens, hold/load facility, gate raise modifications, tilted weirs fish ladder, maintenance facility, fish ladder exits, hold/load facility, adult/juvenile collection channel stoplogs, juvenile fish facility, surface bypass, and gantry crane modifications.

In response to the 1995 Biological Opinion issued by the National Marine Fisheries Service, the District conducted a feasibility study (Lower Snake River Juvenile Salmon Migration Feasibility Study) to evaluate salmon migration problems on the lower Snake River. The objective of the study is to improve salmon migration conditions through the four Corps-operated dams and reservoirs on the lower Snake River. The study focuses on how these dams can be changed to improve survival and recovery prospects for Snake River salmon stocks under the Endangered Species Act. The total completed cost of the study was $31.1 million.

The District is currently managing a surface bypass and collection technology development effort that focuses on improving juvenile fish passage for endangered and threatened salmon migration past all Corps hydroelectric projects on the Columbia and lower Snake Rivers. It is an aggressive, nontraditional approach to prototype development that involves fast-track design, construction, testing, and evaluation.

The fully-funded Federal project cost is estimated at $682,700,000 for District projects.

Local cooperation. None required.

Operations during FY. The following improvements and studies were accomplished during FY 03:

- Continued construction on the Ice Harbor Lock and Dam fish ladder emergency auxiliary water supply contract. The purpose is to upgrade and isolate existing pump systems, modify diffusers to allow more flow, and install cranes for access and maintenance upgrade.

- Continued construction on the Lower Granite Lock and Dam fish ladder emergency auxiliary water supply contract. The purpose is to upgrade and isolate existing pump systems, modify diffusers to allow more flow, and install cranes for access and maintenance upgrade.

- Completed second year prototype test of Removable Spillway Weir (RSW) at Lower Granite Lock and Dam. The purpose of the tests is to determine the overall efficiency of the RSW.

- Completed third year of the Juvenile Salmon Spillway Survival Study at Ice Harbor Lock and Dam. Survival studies are being conducted for indication of levels of survival. Spill levels, patterns, and spill duration to provide the best conditions for smolts must be balanced with the negative impacts of high spill on adult salmon passage, fallback, and water quality.

- Initiated design of RSW at Ice Harbor Lock and Dam. The RSW, in combination with basin and deflector modifications may help improve spillway passage conditions and efficiencies.

- Continued modifications to the adult PIT-Tag detection facilities at Ice Harbor Lock and Dam and Lower Granite Lock and Dam.

- Initiated design of spillway gate rehabilitation at McNary Lock and Dam. The gates need repair due to years of use.

- Continued monitoring of forebay temperature at McNary Lock and Dam. During the summer months, water temperature in the McNary forebay, gatewells, and fish collection channel is sometimes deleterious to fish survival and health.

- Completed construction of flow deflectors at Lower Monumental Lock and Dam. The purpose of the deflectors is to allow for higher spill levels for passing juvenile salmonids while staying below the 120 percent total dissolved gas supersaturation waiver limit as recorded by existing tailrace fixed monitoring stations.

- Completed first year of Juvenile Salmon Spillway Survival Study at Lower Monumental Lock and Dam. Fish survival information is extremely limited. Survival of fish that pass via spillway, turbines, and bypass system is largely unknown. It is imperative to collect data, estimate survival, and make improvements necessary to improve fish survival.

Several mitigation studies continued throughout FY 03, including the Turbine Survival Study, the Cylindrical Dewatering Evaluation, and the Fish Ladder Transition Pool Evaluation. Many multi-year research studies were also conducted, including Multiple Bypass Evaluation, Delayed Mortality Evaluation, Temperature Impacts on Adults, and Estuary PIT-Tag Recovery.

The FY costs were $21,339,347. Total project costs are $459,400,000. (See table 30-A, Cost and Financial Statement.)

8. DWORSHAK DAM AND RESERVOIR, ID

Location. The dam is on the North Fork of the Clearwater River, 1.9 miles above its junction with the Clearwater River, near Orofino, ID, and about 35 miles east of Lewiston, ID.

Existing project. The project includes a dam, powerplant, public parks, and appurtenant facilities. The project provides for flood control, navigation, hydroelectric power generation, recreation, and area redevelopment. The reservoir has a normal operating range between the elevations of 1,600 and 1,445 mean sea level (msl). The reservoir has a gross storage capacity of 3,468,000 acre-feet (2 million acre-feet of which are effective for both local and regional flood control and for at-site and downstream power generation). In addition, the reservoir, which extends 59 miles into rugged and relatively inaccessible timberland, provided cost-effective transportation for moving marketable logs. The reservoir provides habitat for elk, deer, and other wildlife. The dam structure is about 3,287 feet long and about 717 feet above the streambed. Fish passage is not feasible due to the height of the dam. A hatchery has been built below the dam to assure continuance of anadromous fish runs. The powerhouse has two 90,000-kilowatt (kW) and one 220,000-kW generating units in operation for a capacity of 400,000 kW. Provisions had been made for three additional 220,000-kW generating units for an ultimate installed capacity of 1,060,000 kW.

A reconnaissance report justifying the feasibility and cost benefits for the addition of a fourth 200,000-kW generating unit was completed in FY 78. However, environmental and economic studies on additional generating units have been curtailed due to public opposition. Unit 4 is undeveloped. Units 5 and 6 were deauthorized in FY 90, and Unit 4 was deauthorized in FY 95. Principal project data are set forth in table 30-C.

Construction of the project began in July 1966. It was placed in operation in 1972 and completed in 1986. Since the project became operational in June 1972, it has prevented about $2,836,000 (adjusted to October 2003 price index) in potential flood damages. Power generation through September 2003 was 51.45 billion kW hours.

At Dworshak Reservoir, recreation facilities consist of 12 day-use/picnic areas, 6 camp areas, 6 boats launches, and 2 swim areas. Total visitation to Dworshak Reservoir for the FY was 126,983.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Management of wildlife habitat browse continued on project lands to provide winter browse for elk and deer. A paving contract was completed at recreation areas. During the FY, 1.69 billion kW hours of electrical power were generated by the three generating units. The FY costs were $10,239,516. (See table 30-A, Cost and Financial Statement.)

9. ICE HARBOR LOCK AND DAM, LAKE SACAJAWEA, WA

Location. This dam is located on the Snake River, 9.7 miles above the river mouth at the head of Lake Wallula (McNary Reservoir) and 12 miles east of Pasco, WA.

Existing project. The project includes a dam, powerplant, navigation lock, two fish ladders, recreation areas, and appurtenant facilities. The project provides navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 440 and 435 msl. Lake Sacajawea extends upstream about 31.9 miles and provides slack water to Lower Monumental Lock and Dam. The dam structure is approximately 2,822 feet long and approximately 130 feet above the streambed. The fish passage facilities include two fish ladders.

The powerhouse has three 90,000-kW units and three 111,000-kW generating units in operation for a capacity of 603,000 kW.

The spillway dam is 590 feet long, and the overflow crest at elevation 391 msl is surmounted by 10 tainter gates, 50 feet wide and 52.9 feet high, that provide the capacity to pass a design flood of 850,000 cubic feet per second (cfs). The deck is at elevation 453 msl and provides a service road and track for a gantry crane. The navigation lock is a single-lift type with clear plan dimensions of 86 by 675 feet and a 16-foot minimum depth over the sills. A navigation channel 250 feet wide, 14 feet deep, and 41.6 miles long is provided from the mouth of the Snake River to the dam and from the dam to Lower Monumental Lock and Dam. Principal data are set forth in table 30-C.

Construction of the original project began in December 1955. It was placed in operation in 1961 and completed in 1971. Construction of the additional generating units was started in 1971 and completed in 1981. Power generation through September 2003 was 87.91 billion kW hours.

Recreation areas on Lake Sacajawea include 11 picnic/day-use sites, 4 camping areas, 7 areas with boat launching, and 4 swimming areas. Total visitation on Lake Sacajawea for the FY was 346,814.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 1.67 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 3,218,700 tons during calendar year 2003. The FY costs were $11,268,235. (See table 30-A, Cost and Financial Statement.)

10. LITTLE GOOSE LOCK AND DAM, LAKE BRYAN, WA

Location. The dam is 70.3 miles above the mouth of the Snake River and at the head of Lake Herbert G. West (Lower Monumental Reservoir), about 40 miles northerly of Walla Walla, WA, and 50 miles westerly of Lewiston, ID.

Existing project. The project includes a dam, powerplant, navigation lock, fish ladder, and appurtenant facilities. The project provides for navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 638 and 633 msl. Lake Bryan extends upstream about 37.2 miles and provides slack water to Lower Granite Lock and Dam. The dam structure is 2,655 feet long and approximately 165 feet above the streambed. Fish passage facilities include one ladder with entrances on both shores and a fish channel through the spillway, which connects to the powerhouse fish collection system and south shore ladder. The powerhouse has six 135,000-kW generating units in operation for a capacity of 810,000 kW. The spillway dam is 512 feet long, and the overflow crest at elevation 581 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, that provide the capacity to pass a design flood of 850,000 cfs. The navigation lock is a single-lift type with clear plan dimensions of 86 by 668 feet and a 15-foot minimum depth over the sills. A navigation channel 250 feet wide, 14 feet deep, and 37.2 miles long is provided from the dam to Lower Granite Lock and Dam. Relocations along the lake included 32 miles of Camas Prairie Railroad, 6.8 miles of county roads, 2.2 miles of state highways, and the Central Ferry Bridge. Principal project data are set forth in table 30-C.

Construction of the original project began in 1963. It was placed in operation in 1970 and completed in 1976. Construction of additional generating units started in 1974 and was completed in 1984. Power generation through September 2003 was 82.23 billion kW hours.

Lake Bryan provides seven day-use sites, five campgrounds, five boat launching areas, and two swimming areas. Total FY visitation was 178,660 for Lake Bryan.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 2.16 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 2,587,800 tons during calendar year 2003. The FY costs were $8,260,804. (See table 30-A, Cost and Financial Statement.)

11. LOWER GRANITE LOCK AND DAM, LOWER GRANITE LAKE, WA

Location. This dam is at river mile 107.5 on the Snake River at the head of Lake Bryan (Little Goose Reservoir) and about 33 miles downstream from Lewiston, ID.

Existing project. The project includes a dam, powerplant, navigation lock, fish ladder, appurtenant facilities, and includes approximately 8 miles of slack water levees along the Snake and Clearwater Rivers at Lewiston, ID. The project provides for slack water navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 738 and 733 msl in Lewiston, ID, and Clarkston, WA. Lower Granite Lake extends upstream approximately 38 miles and provides slack water to the confluence of the Snake and Clearwater Rivers. The dam structure is approximately 3,200 feet long and approximately 146 feet above the streambed. Fish passage facilities include one ladder with entrances on both shores with a fish channel through the spillway that connects to the powerhouse fish collection system and south shore ladder. The powerhouse has six 135,000-kW generating units in operation for a capacity of 810,000 kW. The spillway dam is 512 feet long, and the overflow crest at elevation 681 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, which provide the capacity to pass a design flood of 850,000 cfs. The navigation lock is single-lift type with clear plan dimensions of 86 by 674 feet and 15-foot minimum depth over the sills. A navigation channel 250 feet wide, 14 feet deep, and 39.3 miles long is provided from the dam to the confluence of the Snake and Clearwater Rivers. Principal data are set forth in table 30-C.

Construction of the original project started in July 1965. It was placed in operation in 1975 and completed in 1984. Construction of additional generating units was started in 1974 and completed in 1979. Power generation through September 2003 was 73.48 billion kW hours. Approximately $19,848,000 (adjusted to October 2003 price index) in potential flood damages has been prevented since the levees became functional.

Lower Granite Lake offers visitors 16 day-use/ picnic sites, 6 sites with camping, 12 boat launch ramps, and 4 swimming areas. Total recreation visitation to Lower Granite Lake for the FY was 1,137,162.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 2.15 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 1,544,500 tons during calendar year 2003. The FY costs were $12,148,272. (See table 30-A, Cost and Financial Statement.)

Juvenile Fish Transportation Program. As the first collector dam on the Snake River, Lower Granite is a primary component of the Juvenile Fish Transportation Program. Transport began in the late 1960's as a research program on how to bypass juvenile salmon and steelhead around the Corps' dams and reservoirs of the Snake and Columbia Rivers. Transport became an operational program in 1981 with collection and transport from Lower Granite, Little Goose, and McNary Locks and Dams. Transport was expanded in 1993 to include Lower Monumental Lock and Dam. Development and improvement of collection and bypass systems continues with a new collection system completed at McNary Lock and Dam in 1994; a new bypass system completed at Ice Harbor Lock and Dam in 1996; and extended-length submersible bar screens installed at Lower Granite, Little Goose, and McNary Locks and Dams in 1996 and 1997.

The 2003 juvenile fish transport season was marked by slightly below average river flows, similar to 2002 river conditions. Normal river operations continued in 2003 with projects spilling for juvenile fish per the National Marine Fisheries Service biological opinion. In addition, a new RSW was tested at Lower Granite Lock and Dam. Operation of the test RSW in 2003 resulted in increased project passage via the spillway.

Juvenile fish collection at Lower Granite Lock and Dam was 6,184,228 compared with 4,001,025 in 2002 and 8,341,701 in 2001. A total of 101,343 fish were bypassed back to the river in 2003 and 5,959,371 transported. At Little Goose Lock and Dam, a total of 4,492,886 juvenile salmon and steelhead were collected in 2003, compared to 3,890,617 collected in 2002. A total of 28 fish were bypassed back to the river in 2003, compared to no fish in 2002. A total of 4,478,603 juvenile fish were transported from Little Goose Lock and Dam in 2003. At Lower Monumental Lock and Dam, 2,016,757 juvenile salmon and steelhead were

collected, compared to 4,376,912 in 2002. A total of 117,625 fish were bypassed from Lower Monumental Lock and Dam in 2003, compared to 25,756 in 2003. Voluntary spill for juvenile fish passage resumed at Lower Monumental Lock and Dam during 2003 after repair of erosion areas in the spillway stilling basin.

At McNary Lock and Dam, normal operations are to bypass fish in the spring until approximately mid-June when collection and transport of summer migrants begins. Some marked fish were transported during the spring of 2003 for research purposes. A total of 8,843,494 juvenile salmon and steelhead were collected in 2003, compared to 9,106,355 in 2002. Approximately 4,070,737 of the fish collected were bypassed back to the river to meet fishery agency requirements. A total of 4,698,443 juvenile fish were transported from McNary Lock and Dam in 2003.

A grand total of 21,537,365 juvenile salmon and steelhead were collected at all projects in 2003, compared to 21,374,909 in 2002. A total of 17,126,811 fish were transported in 2003, 80 percent of those collected. Of the fish transported, 16,863,095 were transported by barge (98.5 percent) and 263,716 were trucked (1.5 percent).

12. LOWER MONUMENTAL LOCK AND DAM, LAKE HERBERT G. WEST, WA

Location. This dam is on the Snake River at the head of Lake Sacajawea (Ice Harbor Reservoir), about 45 miles northeast of Pasco, WA, and 41.6 miles above the river mouth.

Existing project. The project includes a dam, powerplant, navigation lock, two fish ladders, and appurtenant facilities. The project provides for navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 540 and 537 msl. Lake Herbert G. West extends upstream approximately 28.7 miles and provides slack water to Little Goose Lock and Dam. The dam structure is approximately 3,791 feet long and approximately 135 feet above the streambed. The fish passage facilities include two fish ladders, one at each end of the dam. The powerhouse has six 135,000-kW generating units in operation for a capacity of 810,000 kW. The spillway dam is 572 feet long, and the overflow crest at elevation 483 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, that provide capacity to pass a design flood of 850,000 cfs. The deck is at elevation 553 msl and provides a service road and track for a gantry crane. The navigation lock is a single-lift type with clear plan dimensions of 86 by 666 feet and a 15-foot minimum depth of the sills. A navigation channel 250 feet wide, 14 feet deep, and 28.1 miles long is provided from the dam to Little Goose Lock and Dam. Relocations along the lake included railroads and highways. Principal data are set forth in table 30-C.

Construction of the original project started in June 1961. It was placed in operation in 1969 and completed in 1976. Construction of the additional generating units started in 1975 and was completed in 1981. Power generation through September 2003 was 97.02 billion kW hours.

Lake West offers seven day-use areas, five areas offering camping, five boat launch areas, and one designated swimming beach. Total visitation on Lake West for the FY was 127,202.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 2.12 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 2,870,800 tons during calendar year 2003. The FY costs were $11,557,794. (See table 30-A, Cost and Financial Statement.)

13. LOWER SNAKE RIVER FISH AND WILDLIFE COMPENSATION PLAN, WA, OR, AND ID

Location. This project is at various locations within the Columbia and Snake River drainages in the states of Idaho, Oregon, and Washington.

Existing project. The project consists of a series of fish hatcheries, wildlife development areas, and purchase of off-site project lands for fishing and hunting access. The project will compensate for loss of wildlife habitat and anadromous and resident fishery inundated as a result of construction of four multipurpose dams and reservoirs on the lower Snake River (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams).

The real estate design memorandum and feature design memorandums on all hatcheries and satellites, the off-project wildlife lands, and the site selection

report have all been approved. A final Environmental Impact Statement was filed with the Council on Environmental Quality on November 2, 1977. The Dworshak National Fish Hatchery Expansion, Irrigon, Hagerman, Lyons Ferry, Lookingglass, McCall, Sawtooth, Magic Valley, and Clearwater hatcheries (including their respective satellite facilities) are all in operation. Transfer actions have been completed except for Big Canyon, Pittsburg Landing, and Captain John Rapids Acclimation Facilities. Transfer of Big Canyon and Pittsburg Landing is scheduled to be complete by the end of FY 04 and Captain John Rapids by the end of FY 05. Fencing is complete at all wildlife development areas. Off-project land acquisition is 100-percent complete. Habitat development continues at many of these sites. A plan for woody riparian habitat development is being initiated to compensate for habitat losses resulting from the inundation of habitat. This will result in the creation of new riparian habitat areas. The compensation project is scheduled for completion in FY 10.

Estimated Federal cost for the project is $261,000,000. (See table 30-A, Cost and Financial Statement.)

Local Cooperation. None required.

14. McNARY LOCK AND DAM, LAKE WALLULA, OR AND WA

Location. This dam is on the Columbia River, 292 miles above the mouth, near Umatilla, OR, and 3 miles above the mouth of the Umatilla River.

Existing project. The project includes a dam, powerplant, navigation lock, two fish ladders, appurtenant facilities, and a system of levees and pumping plants. The project provides for slack water navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 340 and 335 msl. Lake Wallula extends upstream approximately 64 miles and provides slack water to Ice Harbor Lock and Dam. The dam structure is 7,365 feet long and approximately 183 feet above the streambed. Fish passage facilities include two fish ladders. The powerhouse has fourteen 70,000-kW generating units in operation for a capacity of 980,000 kW. The spillway dam is 1,310 feet long, and the overflow crest is at elevation 291 msl and is surmounted by 22 vertical lift gates, 50 feet wide and 51 feet high, which provide the capacity to pass a design flood of 2.2 million cfs. The navigation lock is a single-lift type with clear plan dimensions of 86 by 683 feet and a 15-foot minimum depth over the sills. A navigation channel (250 feet wide, 14 feet deep, and 32 miles long) is provided from the dam to the mouth of the Snake River. Relocations along the lake included railroad bridges over the Columbia and Snake Rivers in order to eliminate hazards to navigation. Principal project data are set forth in table 30-C.

Construction began in May 1947. It was placed in operation in 1953 and was completed in 1982. Power generation through September 2003 was 307.90 billion kW hours.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 5.69 billion kW hours of electrical power were generated by the 14 generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 7,000,200 tons during calendar year 2003. The FY costs were $19,748,971. (See table 30-A, Cost and Financial Statement.)

Recreation areas on Lake Wallula include 19 sites offering day use or picnicking, 5 campgrounds, 14 boat launching ramps, and 9 swimming areas. The Pacific Salmon Visitor Information Center at McNary Lock and Dam, staffed by park rangers, provides a regional overview of Corps efforts in salmon recovery issues. Total visitation on Lake Wallula for the FY was 4,419,377.

15. SNAKE RIVER DOWNSTREAM FROM JOHNSON BAR LANDING, OR, WA, AND ID

Location. This project is on the Snake River, downstream from Johnson Bar Landing, river mile 230. The Snake River, which is the largest tributary of the Columbia River, rises in Yellowstone National Park in western Wyoming, flows generally in a westerly direction for approximately 1,000 miles, and empties into the Columbia River, near Pasco, WA, 324 miles from the Pacific Ocean.

Existing project. The River and Harbor Act of 1945 authorized construction of dams, as necessary, for power, incidental irrigation, and open channel improvements for purposes of providing slack water navigation and irrigation between the mouth of the Snake River and Lewiston, ID. That authorization

modified previous authorizations only for the portion of improvement below Lewiston, ID. Acts of June 13, 1902, and August 30, 1935, as they pertain to open river improvement from Lewiston, ID, to Johnson Bar Landing, remain part of the existing project.

Improvements included in existing projects are Ice Harbor Lock and Dam, Lake Sacajawea; Little Goose Lock and Dam, Lake Bryan; Lower Granite Lock and Dam; Lower Monumental Lock and Dam, Lake Herbert G. West; and open-river improvement, Lewiston to Johnson Bar Landing. Each of the four locks and dams is described in an individual report, and cost and financial data for the entire project are shown on tables 30-A and D.

Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams are in full operation.

Local cooperation. None required.

Terminal facilities. On the Snake River from the mouth to Johnson Bar Landing, there are 18 privately-owned barge terminals in use for shipping grain, petroleum products, fertilizers, wood products, cement, and other general cargo. There are also 5 marinas and 28 small-boat launching ramps, all open to the public. The facilities serve slack water navigation to river mile 140, the site of Lewiston, ID. That slack water reaches the Lewiston, ID, and Clarkston, WA, area since the lake behind Lower Granite Lock and Dam was filled in February 1975.

Operations during FY. See individual reports for Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams. On the Snake River from Lewiston, ID, to Johnson Bar Landing, reconnaissance and condition surveys were conducted and survey markers were maintained.

16. MISCELLANEOUS WORK UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to Section 205, PL 858, 80th Congress, as amended:

The FY costs were $246,729 with four continuing flood control activities: (1) Section 205 coordination ($42,000); (2) Coppei Creek, WA ($173,706); (3) Mill Creek, WA ($13,823); (4) Boise River Eckart Road to Warm Springs, ID ($17,200). There were no new flood control activities.

Emergency flood control activities-repair, flood fighting, and rescue work (PL 99, 84th Congress, and antecedent legislation):

There were no Federal costs this FY.

Emergency bank protection (Section 14, Flood Control Act of 1946, PL 526, 79th Congress):

The FY costs were $22,000 for Section 14 Coordination.

Snagging and clearing of navigable streams and tributaries in interest of flood control (Section 208, Flood Control Act of 1954, PL 780, 83rd Congress):

The FY costs were $6,000 for Section 208 Coordination.

Project modification for the improvement of the environment (Section 1135(b), PL 99-662, as amended):

The FY costs were $386,224 for continuation of eight environmental restoration projects and coordination funds including: (1) Coordination Account ($47,300); (2) Walla Walla River, OR ($18,937); (3) Grande Ronde River, OR ($5,850); (4) Milton-Freewater, OR ($25,000); (5) City of Richland Ecosystem Restoration ($84,893); (6) Portneuf River at Pocatello, ID ($4,300); (7) Boise River at Eagle Island ($133,444); and (8) Bennington Lake Diversion Dam, WA ($66,500). Two new projects: (1) Mill Creek Channel, WA ($9,900) and (2) Two Rivers, Benton County, WA ($29,898).

Project modification for Aquatic Ecosystem Restoration (Section 206, PL 104-303, as amended):

The FY costs were $735,158 for continuation of six aquatic ecosystem restoration projects and coordination account, including: (1) Coordination Account ($36,000); (2) Ladd Marsh, OR ($61,600); (3) Salmon River, ID ($267,850); and (4) Portneuf River, Lava Hot Springs, ID ($179); (5) Paradise Creek, Moscow, ID ($220,900); and (6) Indian Creek Ecosystem Restoration, ID ($148,629). Six new projects include (1) Twin Falls, ID ($104,772); (2) City of Pullman, WA ($9,600); (3) Fox Creek, Huntsman Reach, ID ($66,490); (4) Walla Walla River Ecosystem Restoration ($29,800); (5) Camp

Creek, OR ($24,200); and (6) Wawawai Creek, WA ($6,100).

General Investigations

17. SURVEYS

Boise River. Lack of sponsor.

Little Wood River. Lack of sponsor.

The total FY 03 costs for surveys were $81,404, including special studies [Walla Walla River Watershed ($605,746)]; Miscellaneous Activities [Special Investigations, FERC Licensing Activities, North American Waterfowl Management Plan, and Interagency Water Resource Development ($91,000)]; Coordination with other Federal Agencies ($10,000); and Planning Assistance to States ($107,200).

18. COLLECTION AND STUDY OF BASIC DATA

During the FY, flood hazard data for a number of locations in the District were collected and analyzed. Flood information was provided to several Federal agencies; to the states of Idaho, Oregon, and Washington; to various cities and counties in those states; and to some private organizations.

Total cost of collection and study of basic data during the FY was $99,473, which included: Flood Plain Management Services ($20,450); Technical Services ($21,882); Quick Responses ($4,151); and Special Studies ($52,990).

19. PRECONSTRUCTION, ENGINEERING, AND DESIGN

Upper Snake River, Jackson Hole, WY. This feasibility study was authorized under the Water Resources Development Act of 2000. The project recommended the Progressive National Ecosystem Restoration plan at a cost of $66,500,000 to construct 12 sites located along a 22-mile stretch of the upper Snake River, which includes continuing construction, monitoring, and adaptive management. The pre-construction, engineering, and design phase will produce construction plans and specifications at Site 9 to enhance and restore fish and wildlife habitat. The Site 9 project design will apply project restoration features, including eco-fences, channel capacity excavation, spur dikes, rock grade control, and bed stabilization ($4,203).

TABLE 30-A **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY 00 ($)	FY 01 ($)	FY 02 ($)	FY 03 ($)	Total Cost to Sep 30, 2003 ($)
3.	Jackson Hole, WY	New Work					
		Approp.	-	-	-	33,000	2,558,070
		Cost	-	-	-	33,000	2,558,070
		Maint.					
		Approp.	1,140,507	1,871,951	968,488	700,000	11,204,125
		Cost	1,133,473	1,783,387	1,064,412	655,267	11,884,633
	(Contributed funds)	Maint.					
		Contrib.	-	-	-	-	378,798
		Cost	-	-	-	-	378,798
4.	Lucky Peak Lake, ID	New Work					
		Approp.	-	-	-	-	19,652,081
		Cost	-	-	-	-	19,652,081
		Maint.					
		Approp.	1,419,675	1,451,180	1,619,997	1,540,826	29,503,352
		Cost	1,099,314	1,768,708	1,592,648	1,571,213	29,493,407
5.	Mill Creek, WA	New Work					
		Approp.	-	-	-	-	2,258,495
		Cost	-	-	-	-	2,258,495
		Maint.					
		Approp.	836,064	1,377,275	2,036,402	1,093,000	22,469,458
		Cost	866,919	1,435,619	2,041,853	1,078,734	22,455,155
		Rehab					
		Approp.	-	-	-	-	17,714,102
		Cost	-	-	-	-	17,714,102
7.	Columbia River Fish Mitigation Program, OR, WA, and ID	New Work					
		Approp.	25,696,999	41,040,000	29,210,362	21,094,457	459,413,819
		Cost	30,656,582	41,882,547	30,947,014	21,339,347	459,400,361
8.	Dworshak Dam and Reservoir, ID	New Work					
		Approp.	-	-	-	-	327,482,196
		Cost	-	-	-	-	327,482,196
		Maint.					
		Approp.	9,524,659	9,769,017	11,122,654	10,553,006	191,599,359
		Cost	9,535,939	9,781,613	11,080,909	10,239,516	191,135,762
9.	Ice Harbor Lock and Dam, WA	New Work					
		Approp.	-	-	-	-	210,249,757
		Cost	-	-	-	-	210,249,757
		Maint.					
		Approp.	9,077,285	10,201,830	10,515,723	11,808,101	194,012,851
		Cost	9,123,794	10,017,804	10,585,642	11,268,235	193,303,571
10.	Little Goose Lock and Dam, WA	New Work					
		Approp.	-	-	-	-	262,632,022
		Cost	-	-	-	-	262,632,022
		Maint.					
		Approp.	6,307,453	6,737,274	8,425,824	8,450,437	135,238,099
		Cost	6,476,682	6,724,597	8,254,150	8,260,804	134,811,561

TABLE 30-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00 ($)	FY 01 ($)	FY 02 ($)	FY 03 ($)	Total Cost to Sep 30, 2003 ($)
11.	Lower Granite Lock and Dam, WA	New Work Approp.	-	-	-	-	400,080,315
		Cost	-	-	-	-	400,080,315
		Maint. Approp.	9,416,297	9,740,100	14,099,858	12,888,666	193,715,927
		Cost	9,121,087	9,993,910	14,108,361	12,148,272	192,827,663
12.	Lower Monumental Lock and Dam, WA	New Work Approp.	-	-	-	-	238,612,732
		Cost	-	-	-	-	238,612,732
		Maint. Approp.	7,831,705	15,627,677	4,162,583	11,432,459	146,340,623
		Cost	7,775,230	8,470,468	10,722,283	11,557,794	145,640,906
13.	Lower Snake River Fish and Wildlife Compensation Plan WA, OR, and ID	New Work Approp.	1,230,032	888,000	1,570,638	1,250,543	233,483,181
		Cost	1,061,330	1,054,271	1,572,257	1,267,395	233,482,652
	(Contributed funds)	New Work Contrib.	-	-	-	-	223,965
		Cost	-	-	-	-	223,965
14.	McNary Lock and Dam, Lake Wallula, OR and WA	New Work Approp.	-	-	-	-	375,214,469
		Cost	-	-	-	-	375,214,469
		Maint. Approp.	15,675,724	15,111,061	17,805,600	22,344,583	341,386,753
		Cost	16,002,925	14,980,047	17,668,731	19,748,971	338,086,364
	(Contributed funds)	Maint. Contrib.	-	-	-	-	43,707
		Cost	-	-	-	-	43,707

TABLE 30-B **AUTHORIZING LEGISLATION**

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
4.		**LUCKY PEAK LAKE, ID**	
	Jul 24, 1946	Dam for flood control, irrigation, and recreation.	PL 79-526, Chief of Engineers Report, dated May 13, 1946.
	Oct 22, 1976	Second outlet for streamflow maintenance. Deauthorized in 1990.	PL 94-587
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
5.		**MILL CREEK, WALLA WALLA, WA**	
	Jul 28, 1938 as amended	Off-stream storage project upstream from Walla Walla.	H. Doc. 578, 75th Cong., 3rd Session
	Aug 18, 1941	Channel improvement through Walla Walla; concrete-lined channel.	H. Doc. 719, 76th Cong. Sec 377, PL 77-228, Cong. 3rd Session
	Oct 31, 1992	Redesignation of reservoir to the Virgil B. Bennington Lake.	Sec. 118 PL 102-580 102nd Cong.
7.		**COLUMBIA RIVER FISH MITIGATION PROGRAM**	
	Jul 19, 1988	Design, test, and construct fish bypass facilities at Lower Monumental, Ice Harbor, Little Goose, Lower Granite, and McNary Locks and Dams.	PL 100-371
8.		**DWORSHAK DAM AND RESERVOIR, ID**	
	Jul 3, 1958	Preparation of detailed plans.	S. Doc. 51, 84th Cong., 1st Session
	Aug 15, 1963	Redesignation of project as Dworshak Dam and Reservoir.	PL 88-96
	Oct 23, 1962	Dworshak Dam added Units 4, 5, and 6, Idaho. Units 5 and 6 were deauthorized in FY 1990. Unit 4 was deauthorized in FY 95.	PL 87-874
9.		**ICE HARBOR LOCK AND DAM, LAKE SACAJAWEA, WA**	
	Mar 2, 1945	Unit 1 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
10.		**LITTLE GOOSE LOCK AND DAM, LAKE BRYAN, WA**	
	Mar 2, 1945	Unit 3 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 31, 1970	Designation of reservoir as Lake Bryan.	PL 91-638
11.		**LOWER GRANITE LOCK AND DAM, LOWER GRANITE LAKE, WA**	
	Mar 2, 1945	Unit 4 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
12.		**LOWER MONUMENTAL LOCK AND DAM, LAKE HERBERT G. WEST, WA**	
	Mar 2, 1945	Unit 2 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	May 25, 1978	Designation of reservoir as Lake Herbert G. West.	PL 95-285

TABLE 30-B (Continued) AUTHORIZING LEGISLATION

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
13.		**LOWER SNAKE RIVER FISH AND WILDLIFE COMPENSATION PLAN, WA, OR, AND ID**	
	Oct 22, 1976 as amended	Fish hatcheries and replacement of wildlife habitat.	PL 94-587
	Nov 17, 1986	Changes to land acquisition authority.	H.R. 6 PL 99-662
14.		**McNARY LOCK AND DAM, LAKE WALLULA, OR AND WA**	
	Mar 2, 1945	Lock and dam for navigation, power, recreation, and irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
	Nov 17, 1986	Construction, operation, and maintenance of a second powerhouse. McNary Lock and Dam Second Powerhouse automatically deauthorized on Nov 16, 1991.	H.R. 6, PL 99-662 Sec. 1001, PL 99-362
15.		**SNAKE RIVER TO JOHNSON BAR, OR, WA, AND ID**	
	Jun 13, 1902	Open-river navigation Riparia to Pittsburg Landing.	H. Doc. 127, 56th Cong, 2nd Session
	Jun 25, 1910	Mouth to Riparia.	H. Doc. 411, 55th Cong, 2nd Session
	Aug 30, 1935	Pittsburg Landing to Johnson Bar.	Rivers and Harbors Committee, Doc. 25, 72nd Cong, 1st Session
	Mar 2, 1945	Supersedes previous legislation, mouth to Lewiston, ID, only. See Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams.	H. Doc. 704, 75th Cong., 2nd Session

TABLE 30-C PRINCIPAL DATA CONCERNING NAVIGATION LOCK, SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT

Project		
Dworshak Dam and Reservoir, ID (see Section 8 of text)	**SPILLWAY DAM**	
	Type of Construction	Concrete Gravity
	Completed	September 1974
	Maximum Capacity	150,500 cfs[1]
	Crest Elevation	1,545 ft[2]
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 56.4 ft
	Number	2
	POWERPLANT	
	Length	428 ft
	Generating Units:	
	Number Installed	3
	Rating, Each	2 @ 90,000 kW[3] 1 @ 220,000 kW
	Total Capacity Installed	400,000 kW
	Space for Additional	3
	Rating, Each	3 @ 220,000 kW
	Total Potential Capacity	1,060,000 kW
	Maximum Structural Height	717 ft
	First Power-On-Line	March 1973
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	1,600 to 1,445 ft
	Maximum	1,605 ft
	Flood Control Storage	2,000,000 ac-ft[4]
	Lake Length	53.6 mi[5]
	Lake Water Surface Area at Elevation 1,600	17,090 ac[6]
	Length of Shoreline	175 mi
Ice Harbor Lock and Dam, WA (see Section 9 of Text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	675 ft
	Lift:	
	Minimum	97 ft
	Average	100 ft
	Maximum	105 ft
	Minimum Water Depth Over Sills	16 ft
	Open to Navigation	May 1962
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	January 1962
	Maximum Capacity	850,000 cfs
	Crest Elevation	391 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 52.9 ft
	Number	10

TABLE 30-C (Continued) PRINCIPAL DATA CONCERNING NAVIGATION LOCK, SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT

Project		
	POWERPLANT	
	Length	671 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	3 @ 90,000 kW 3 @ 111,000 kW
	Total Capacity Installed	603,000 kW
	Maximum Structural Height	226 ft
	First Power-On-Line	December 1961
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	440 to 437 ft
	Maximum	446 ft
	Lake Length	31.9 mi
	Lake Water Surface Area at Elevation 440	8,375 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	80 mi
Little Goose Lock and Dam, WA (see Section 10 of text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	668 ft
	Lift:	
	Minimum	93 ft
	Average	98 ft
	Maximum	101 ft
	Minimum Water Depth Over Sills	15 ft
	Opened to Navigation	May 1970
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	January 1970
	Maximum Capacity	850,000 cfs
	Crest Elevation	581 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 60 ft
	Number	8
	POWERPLANT	
	Length	656 ft
	Width	243 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	135,000 kW
	Total Capacity Installed	810,000 kW
	Maximum Structural Height	226 ft
	First Power-On-Line	March 1970

TABLE 30-C (Continued) PRINCIPAL DATA CONCERNING NAVIGATION LOCK, SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT

Project		
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	638 to 633 ft
	Maximum	646.5 ft
	Lake Length	37.2 mi
	Lake Water Surface Area at Elevation 738	10,025 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	92 mi
Lower Granite Lock and Dam, WA (see Section 11 of text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	674 ft
	Lift:	
	Minimum	95 ft
	Average	100 ft
	Maximum	105 ft
	Minimum Water Depth Over Sills	15 ft
	Opened to Navigation	May 1975
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	February 1975
	Maximum Capacity	850,000 cfs
	Crest Elevation	681 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 60 ft
	Number	8
	POWERPLANT	
	Length	656 ft
	Width	243 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	135,000 kW
	Total Capacity Installed	810,000 kW
	Maximum Structural Height	228 ft
	First Power-On-Line	April 1975
	IMPOUNDMENT	
	Elevations:	
	Normal Operation Range	738 to 733 ft
	Maximum	746.5 ft
	Lake Length	39.3 mi
	Lake Water Surface Area at Elevation 738	8,900 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	91 mi

TABLE 30-C (Continued) PRINCIPAL DATA CONCERNING NAVIGATION LOCK, SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT

Project		
Lower Monumental Lock and Dam, WA (see Section 12 of text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	666 ft
	Lift:	
	Minimum	97 ft
	Average	98 ft
	Maximum	103 ft
	Minimum Water Depth Over Sills	15 ft
	Opened to Navigation	April 1969
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	March 1969
	Maximum Capacity	850,000 cfs
	Crest Elevation	483 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 60 ft
	Number	8
	POWERPLANT	
	Length	656 ft
	Width	243 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	135,000 kW
	Total Capacity Installed	810,000 kW
	Maximum Structural Height	242 ft
	First Power-On-Line	May 1969
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	540 to 537 ft
	Maximum	548 ft
	Lake Length	28.7 mi
	Lake Water Surface Area at Elevation 540	6,590 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	78 mi
McNary Lock and Dam, OR and WA (see Section 14 of text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	683 ft
	Lift:	
	Minimum	67 ft
	Average	75 ft
	Maximum	83 ft
	Minimum Water Depth Over Sills	15 ft
	Open to Navigation	November 1953

TABLE 30-C (Continued) PRINCIPAL DATA CONCERNING NAVIGATION LOCK, SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT

Project		
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	October 1953
	Maximum Capacity	2,200,000 cfs
	Crest Elevation	291 ft
	Control Gates:	
	Type	Vertical Lift
	Size, Width by Height	50 by 51 ft
	Number	22
	POWERPLANT	
	Length	1,348 ft
	Generating Units:	
	Number Installed	14
	Rating, Each	70,000 kW
	Total Capacity Installed	980,000 kW
	Maximum Structural Height	220 ft
	First Power-On-Line	November 1953
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	340 to 335 ft
	Maximum	356.5 ft
	Lake Length	64 mi
	Lake Water Surface Area at Elevation 340	38,800 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	242 mi

[1] cubic feet per second
[2] feet
[3] kilowatt
[4] acre-feet
[5] miles
[6] acres

SNAKE RIVER DOWNSTREAM FROM JOHNSON BAR LANDING, OR, WA, AND ID

TABLE 30-D (SEE SECTION 15 OF TEXT)

Project	Estimated Cost (Corps of Engineers Funds Only)	New Work to September 30, 2003 Approp.	New Work to September 30, 2003 Cost	Maintenance to September 30, 2003 Approp.	Maintenance to September 30, 2003 Cost	Percent Completed	Constr. Started
Ice Harbor Lock and Dam							
Initial Project	$365,891,051	$172,587,480	$172,587,480	$194,012,851	$193,303,571	100	FY 56
Code 710 Rec Facilities	914,256	914,256	914,256	0	0	100	FY 57
Power Units 4-6	36,748,021	36,748,021	36,748,021	0	0	100	FY 71
Fish Bypass Program	88,085,000	53,912,000	53,912,000	0	0	61	FY 91
Totals	491,638,328	264,161,757	264,161,757	194,012,851	193,303,571	93	
Little Goose Lock and Dam							
Initial Project	336,501,776	201,690,215	201,690,215	135,238,099	134,811,561	100	FY 63
Power Units 4-6	60,941,807	60,941,807	60,941,807	0	0	100	FY 74
Fish Bypass Program	85,508,000	43,287,000	43,287,000	0	0	51	FY 89
Totals	482,951,583	305,919,022	305,919,022	135,238,099	134,811,561	91	
Lower Granite Lock and Dam							
Initial Project	546,631,554	353,803,981	353,803,981	193,715,927	192,827,663	100	FY 65
Code 710 Rec Facilities	63,800	63,800	63,800	0	0	100	FY 84
Power Units 4-6	46,212,534	46,212,534	46,212,534	0	0	100	FY 74
Fish Bypass Program	58,620,000	35,620,000	35,620,000	0	0	61	FY 88
Totals	651,527,888	435,700,315	435,700,315	193,715,927	192,827,663	96	
Lower Monumental Lock and Dam							
Initial Project	332,592,267	186,951,361	186,951,361	146,340,623	145,640,906	100	FY 61
Power Units 4-6	51,661,371	51,661,371	51,661,371	0	0	100	FY 75
Fish Bypass Program	90,134,000	37,063,000	37,063,000	0	0	41	FY 90
Totals	474,387,638	275,675,732	275,675,732	146,340,623	145,640,906	89	
Open River Lewiston to Johnson Bar Landing	34,613	34,613	34,613	401,583	401,583		
Open River Pasco to Lewiston	0	0	0	4,350	4,350		
Totals Existing Project	2,100,540,050	1,281,491,439	1,281,491,439	669,713,433	666,989,634	93	
Previous Projects Pasco to Lewiston	400,150	400,150	400,150	186,570	186,570		
Totals Authorized Project	$2,100,940,200	$1,281,891,589	$1,281,891,589	$669,900,003	$667,176,204		